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UNITED STATES DEPARTMENT OF AGRICULTURE

INDEX TO VOLUME VII

WEEKLY NEWS LETTER

AUGUST 6, 1919—JULY 28, 1920

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Weekly News Letter

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Nation-Wide Drive to Improve All Live Stock By Better Sires

Department Announces Campaign in Cooperation with State Agencies and Breeders

Scrub Animals Retard Industry; Farmers Asked to Grade Up Herds and Flocks; Official Emblems for Cooperators

Looking forward to the future food needs of this country's increasing population, the United States Department of Agriculture, in cooperation with the State agricultural colleges and other agencies interested in live-stock improvement, announces a national better-live-stock crusade, to get actively in motion October 1 under the slogan of "Better Sires—Better Stock."

The plan is to hasten the replacement of the multitude of scrub domestic animals in the United States with pure-bred or high-grade stock and also to improve the quality of pure breds themselves. It has been evolved through long and careful observation of the live-stock industry in this country and after extensive consultation with specialists and breeders.

Nation's Milk Average Low

For many years this country has contained thousands of the finest specimens of live stock in the world, but in spite of that fact the quality and productive capacity of the average farm herd and flock is still low. For instance, the average dairy cow in the United States yields about 4,000 pounds of milk a year, a figure scarcely two-thirds the average production in some European countries, such as Denmark. The United States has thousands of cows which have milk yields of more than 12,000 pounds—double the Danish average—but on the other hand it has hundreds of thousands which are kept for milk and yet yield only a small fraction as much product as the best cows, though receiving nearly as much feed and care.

The difference in milk yield is due in large measure to a difference in breeding, but a herd of low production can be improved rapidly by the use of a pure-bred sire from a family of high producers.

More Sirloin on Well-Bred Cattle

Among all classes of live stock a similar condition exists. Proper breeding of beef animals results in better and more uniform stock, having a greater percentage of desirable cuts of meat and a smaller quantity of bone, offal, and inedible parts. Likewise in swine, sheep, goats, and poultry production, the kind of parent stock largely determines the quality and market

(*Continued on page 6.*)

BANISH SCRUB SIRES FROM UNITED STATES

With confidence that better live stock will bring satisfaction and many benefits to its owners, I invite the concerted action of farmers, stockmen, and others in banishing scrub sires from the United States. The widespread use of inferior male breeding animals has been for many years a cause of low production per animal and of needlessly poor quality.

The continuance of such conditions is uneconomic and unnecessary. The direct and practical means of improvement is to use breeding animals, especially sires, which are true representatives of breeds developed for a definite, useful purpose.

I am confident, too, that the public, knowing production to be performed with maximum efficiency, will look upon stock raising with increased respect and understanding. In a few localities noteworthy improvement in special lines has been taking place through individual and community efforts. Let us now hasten such improvement wherever live stock is kept in the United States.

J. R. MOHLER,
Chief, Bureau of Animal Industry.

NEW WHEAT DISEASES SEEM TO BE WELL UNDER CONTROL

Flag Smut and Take-All Not to Become Widespread

Indiana and Illinois Act to Stamp Out Infection; Prompt Action Prevents Quarantine; Close Watch to Continue

Indications are that the two dreaded foreign foes of wheat, flag smut and take-all, will not become widespread in the United States. The United States Department of Agriculture announces that the two States where these diseases appeared, Indiana and Illinois, have taken steps that will prevent the spread of the diseases from the infected fields and that should wipe out in a few years the infection in fields where it exists.

Indiana officials came to the recent hearing in Washington with adequate safeguards already placed. Shortly after the hearing, Illinois established similar safeguards. All the infected wheat in both States is under control and will be disinfected before any use whatever is made of it. All straw and stubble are to be burned, thrashing machines are to be thoroughly disinfected, and no wheat is to be grown in infected areas for several years.

But Fight Is Not Over

Under these conditions full confidence is felt that neither of the diseases will spread from the diseased areas in Illinois and Indiana. That does not mean, however, that the fight against flag smut and take-all is over. It is possible that one or both of the diseases exist this year in

places where they have not been recognized. There is, however, no great probability that this is true. The Department of Agriculture and its cooperating agencies have been diligently on the lookout for these two diseases all summer and have found no evidences of them except in the two areas. Both flag smut and take-all occur in Illinois and only take-all in Indiana. The experts, however, realize the possibility that some infested spots may have escaped observation, and it would not be surprising if diseased fields are found elsewhere next spring.

In the meantime, there will be no let-up in the work of preventing either of the diseases from getting a real foothold anywhere in the United States. The Federal Department is working with the authorities of Illinois and Indiana, giving them every possible aid. Its pathologists are energetically studying the diseases, and its representatives are searching the country over to make certain whether or not there are other infested areas and to see that effective measures of control are available if any such areas are discovered.

Prompt Action Prevents Quarantine

The cooperation of State authorities is essential in order to prevent hardship if further infestations should be discovered. Only the prompt action of Indiana and Ilinois prevented the placing of a quarantine against all the wheat in those States, a measure which would have meant hardship not only to all the wheat growers in the two States but to dealers, millers, and consumers. Even prompter State action will be desirable if either of the diseases is found later to exist in any other State.

Neither of these diseases is likely to find its way into the country again from outside sources. The Department of Agriculture has established quarantine regulations against all the rest of the world in which either of the diseases exists. No small grain can come in for any purpose unless it has been thoroughly sterilized with steam heat. It is the purpose of the department, says its officials, to make the clean-up of these plant plagues as thorough and as prompt as it did the foot-and-mouth disease of animals a few years ago.

Blister rust, a disease that is very destructive to white-pine trees and which passes one stage of its growth on currants and gooseberries, is a serious menace in some sections. In order to protect these trees wherever they represent valuable lumber interests it is necessary to destroy all current and gooseberry bushes in such areas and to prohibit the further planting of them.

STILL TIME IN SOUTH TO MATURE MANY VEGETABLES

Seasonal Suggestions Made by Specialists in Extension Work

Little Work Now Will Save Much Effort in Garden Next Year; Work in Clover Outlined for August

The following suggestions on August problems are made to farmers in the South by the Office of Extension Work South, States Relations Service:

Over all of the southern territory there is sufficient time to mature a number of different vegetables. In many sections the early varieties of corn will develop to the roasting-ear stage before frost. Snap beans, especially the bush variety, spinach, radishes, and lettuce may be grown for farm use. Even though a garden is not reseeded, weeds and grass should be killed by cultivation to prevent seed maturing. A little time and effort at this season of the year will save much work in the garden next season. Consult with your county agent or your State horticulturist for varieties of vegetables best suited to your territory at this season of the year.

HIGH-CLASS BULLY BEEF

An Oklahoma farmer had 2 registered Shorthorn yearling bulls that he priced at $100 each for breeding purposes. A butcher saw the bulls, asked the price, but learned that they were registered, and that it would take $100 each to buy them. He bought them, killed them, and stated that they were the cheapest cattle he had bought for some time, because they cut the better kinds of beef, and more of it.—U. S. Department of Agriculture.

Clover Work for August

Red clover.—Wherever red clover is used in the South, seeding may be done in August after winter grain has been harvested. In this case the seed bed should be carefully prepared, making it fine but firm.

Crimson clover.—Crimson clover may be seeded in the latter part of this month or early in September, and from then on through October, depending on the section. In the South a great deal of unhulled crimson clover seed is used. This gives just as good satisfaction as the hulled seed, but it is harder to handle. In either case the farmer will be wise if he has a test made of the seed he intends to sow, so that he may know whether the sample contains weed seeds and what percentage of the seed will grow. This matter should be attended to in plenty of time so that it will not be necessary to buy seed at the last moment and sow it without knowing whether or not the seed is good.

Rogueing Sorghum Seed Plats

In order to obtain pure sorghum seed it is usually necessary to go over the field carefully after it has headed out and remove the rogues or off-type plants. Every plant which does not conform to the type which is desired should be cut down, or, better, pulled up so that there will be no danger of the production of seed from tillers produced by the rogue.

In dwarf varieties the rogueing can be done easily by a man on foot, but in the taller growing sorts it is most practical to ride through the field on horseback so that the worker can see over the top of the field and thus more readily determine the position of the rogues which must be removed. The horse can be securely muzzled to prevent injury other than that occasioned by the tramping down of plants.

It is not profitable to rogue fields which are intended for the production of grain or forage, but in the production of seed, either for home planting or the market, careful rogueing gives returns both in dollars and cents and in the satisfaction of growing pure seed. Sorghums being open-pollinated are subject to almost endless hybridization if stray plants of other varieties are allowed to mature in the field. This intermixing of varieties results in lack of uniformity in ripening as well as in the size of the plants, thus causing difficulty in harvesting and marketing the crop. The use of pure seed of varieties which are known to be adapted to the farmers' climatic conditions will be rewarded in bigger and better crops.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended July 26, 1919:

Alfalfa on Corn-Belt Farms. Farmers' Bulletin 1021.

Commercial Comb-Honey Production. Farmers' Bulletin 1039.

Dry Farming for Better Wheat Yields. Farmers' Bulletin 1047.

Baling Hay. Farmers' Bulletin 1049.

Findings of the Secretary of Agriculture Regarding Violations of Section 5 of the United States Grain Standards Act. S. R. A. Markets 56.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

UNITED KINGDOM NOT LIKELY TO IMPORT AMERICAN ANIMALS

Live-Stock Situation Reported by Department Men in Europe

Herds and Flocks Have Been Maintained Better Than Was Expected, But Average Weight Decreased During War

LIVE-STOCK SITUATION ABROAD

This is the second in a series of articles describing observations on the live-stock situation in foreign countries by representatives of the United States Department of Agriculture.

Other countries will be treated in succeeding articles to be published in the Weekly News Letter.

Embracing comments on live stock, meat, and dairy products and the trend of agricultural progress in the United Kingdom since early spring, a condensed report of its two foreign representatives in that country is made public by the United States Department of Agriculture. The men are George A. Bell, of the Bureau of Animal Industry, and Turner Wright, of the Bureau of Markets, who are still in Europe studying conditions in other countries.

Weight of Live Stock Below Normal

Herds and flocks have been maintained much better than was expected, considering conditions which prevailed during the war, but the average weight of the animals has decreased in comparison with weights of prewar times. This decrease in weight is attributed by British officials with whom the men conferred to shortage of feed and partly to a larger percentage of young animals.

Horsepower is Adequate

There appears to be no serious shortage of horses for work purposes. More might be used to advantage, but as about 120,000 army horses used by the British military forces are to be returned to the United Kingdom, importations of horses in any considerable number from other countries are not expected. In fact, many of the British army horses are being sold in areas where the troops were stationed.

The field-artillery horses purchased in the United States for the British Army were so satisfactory that considerable enthusiasm for Percheron horses has developed. However, a general feeling is manifest that tractors and motor trucks will be used more extensively than in the past, thus reducing the demand for horses.

Cattle Imports Improbable

Cattle in England were observed to be thin in flesh, but that condition is expected to correct itself with the improving feed situation.

Breeding stock and good milch cows were selling at high prices, but according to the report there is no prospect of dairy cattle from other countries being permitted to enter the United Kingdom. On the other hand, breeders are expecting a large export trade in breeding stock. Some animals already have been assembled for shipment to Belgium, France, and Serbia.

Swine and Sheep Decreased

The number of swine in the United Kingdom decreased materially during the war, but there is enough breeding stock available to increase that class of stock rapidly if the amount of feed permits. The extent of pork production is limited principally by available feed.

The number of sheep has been declining for several years, due partly to plowing up of grass lands and partly, it is said, to reduced mutton consumption. No material increase is expected in the number of sheep.

Meat Consumption Below Normal

Before the war the estimated total meat consumption in Great Britain was 160,000 tons a month. The people have been accustomed to a restricted meat diet, and even with the removal of all regulations about 130,000 tons a month are expected to supply all demands until October. An opinion was expressed that English farmers show a tendency to turn to dairying instead of feeding cattle.

When adequate shipping is available, imports of beef by the United Kingdom will be made, it is stated, largely from Australasia, Argentina, and Brazil, where it can be produced at a lower price than in the United States.

Pork and pork products very likely will continue to be in considerable demand in the United Kingdom, but in smaller quantities than during the war.

Dairy-Products Situation

Observations by the department men and the opinions of persons interviewed lead to the belief that the supply of dairy products, especially milk, is unequal to the demand. It was the general opinion that much condensed milk would be imported next winter. Although the United Kingdom normally imports dairy products, the increase in those of condensed milk last year is noteworthy, being about 100,000,000 pounds greater than for either 1916 or 1917. The increase was about 80 per cent, most of which came from the United States.

The report also contains statistics which show briefly that the number of horses and cattle increased slightly during the period 1914-1918, whereas sheep and hogs decreased very considerably. The net estimated loss in these four classes of live-stock for the period was 1,851,430 head, from a total of about 46,000,000 of stock in those classes.

The purpose of the Department of Agriculture in sending the men abroad to study and report on live-stock conditions is chiefly to keep in touch with foreign agriculture as seen from an American point of view. The observations in Europe are being continued, and two other representatives of the department recently left for similar work in South America.

WHEN HENS EAT EGGS

Egg eating sometimes becomes a serious vice, fowls becoming very fond of eggs when they have learned to eat them, and it often spreads from fowl to fowl. It usually begins through accident by eggs being broken or frozen. Be careful to see that this does not happen. See that the nests are properly supplied with straw or other nesting material and have them darkened, so that if an egg is accidentally broken the fowls will not be likely to discover it. Supply plenty of lime in the form of oyster shells, bone, or similar substances to insure a firm shell. As soon as it is discovered that a fowl has formed the habit, the fowl should be removed, in order to prevent the spread of the vice. Once formed, it is difficult to eradicate, and the safest remedy is the death penalty.

Fowls sometimes pluck feathers from themselves and from each other, which is often caused by too close confinement, by the presence of insect pests, or by improper feeding. When some of the fowls of a flock have formed the habit slightly, a wide range with a change of diet, including a plentiful supply of animal feed, and freedom from insect pests, will usually correct the evil. Above all, see that the fowls have plenty of inducement to exercise. If the habit becomes well formed it is very troublesome and may necessitate the killing of some of the fowls in order to stop it.

Bruising is a very common cause of loss in new potatoes. This may be caused either by poor handling methods or by poor containers.

The eelworm disease of wheat may be controlled by the use of clean seed, by crop rotation, and by sanitation.

Weekly News Letter

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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LESSONS OF WAR BENEFIT WOOL SALES PERMANENTLY

Government control of wool marketing during the last year of the war benefited the fleece-growing sections probably as much as 5 to 10 years of intensive educational work could have accomplished, in the opinion of United States Department of Agriculture specialists. Growers the country over have learned that to select, grade, and pack their wool carefully means a better market and higher prices. They have come to appreciate the benefits of organization and higher dividends which come from selling wool in large bulk on the quality basis. As a direct result of getting the small-scale wool-grower on intimate speaking terms with marketing conditions there is not a single fleece-growing State which is not working along some line of cooperative wool pooling and organization for better marketing methods.

Growers are now exerting every effort to establish permanent methods of marketing wool on the value basis. The idea is that wools of each individual clip collected at a central loading point may be graded discriminatingly so that each variety of wool may be sold as a unit for exactly what it is worth. Hence the wool of each individual producer sells on its own merit rather than on the excellence and outstanding qualifications of the collective clip of the community. This is a stimulus to each sheepman to produce a good clip of the best grade and quality which will command the top price. Furthermore, concentration of large amounts of graded wool at a central point attracts the best buyers. This brings keen competition and bidding for the quality wool, with the consequence that producers get the maximum prices.

Organization — wherever get-together community combination has been effected—has been directly responsible for securing highest market prices for the wool. It is hoped that growers will make every effort to continue the excellent system of wool marketing which has been in operation during the last year, as the sale of wool on the merit basis according to grade and quality is a dependable and certain method by which the individual grower will secure more nearly what his wool is worth.

NEGRO PREACHERS STUDY BETTER RURAL PRACTICES

After three weeks' instruction in various phases of rural betterment, 125 Negro preachers from rural districts in 16 States have returned to their homes prepared to transmit what they have learned to the members of their congregations. Under the auspices of Gammon Theological Seminary and the Board of Home Missions of the Methodist Episcopal Church South, a corps of special instructors from Tuskegee Institute representing the extension service of the United States Department of Agriculture, the Alabama Polytechnic Institute and the Tuskegee Institute gave practical demonstrations in agricultural, domestic and hygienic advancement.

According to the extension workers, the preacher is the best medium yet disclosed for reaching effectively the country Negro. Therefore the preachers were taught the approved methods of sanitation and improvement of the home, church, and school surroundings. They also learned much about soils and their productive power; how to build good chicken houses; and the weaving of rag rugs, shuck mats, and chair bottoms.

U. S. GRAIN BUYING MAKES GRADING KNOWLEDGE VITAL

That farmers, country grain dealers, millers, and county agents, in certain sections of Maryland and West Virginia might have an opportunity to familiarize themselves with the correct methods of grading grain under Federal standards for wheat, shelled corn, and oats, Federal grain supervision workers of the United States Department of Agriculture, recently conducted grain grading meetings at Frederick, Md., and Martinsburg, W. Va.

At all meetings a fully equipped grain inspection office was arranged with exactly the same equipment and appliances that are used by the licensed grain inspectors in the large markets and the offices of Federal grain supervision. The equipment was carried over the itinerary by motor truck and is furnished by the Bureau of Markets of the Department of Agriculture.

To make the demonstrations thoroughly practical, farmers were invited to bring samples of their grain, in order that factors determining the grades might be indicated on their own grain.

The importance of the meeting is emphasized by the fact that the United States wheat director has required the local mills and wheat buyers to buy accurately, according to the Federal grades, to properly reflect the price schedule to the local points, and to insure a premium grade for premium quality wheat. The object of the meeting was to give the farmers a knowledge of grain grading in order that they might supervise intelligently the assignment of a grade to their own grain when marketing it.

Similar demonstrations have been conducted elsewhere or are planned for the near future.

SOUND ADVERTISING FOUND IN ACCREDITED CATTLE HERD

"In the first tuberculin test we had several animals condemned, animals of considerable value, which, without exception, had been bought from outside sources as foundation stock. * * *

"The fact that they reacted not long after they were settled here, and that we have never raised a beast ourselves that was condemned, seems to me clear evidence that these animals were fraudulently tested and allowed to get through to us, causing a considerable financial loss and exposing our herd to contagion. The official test cleaned up this mess and while it caused us considerable financial loss at the time it nipped in the bud what might have developed into a wider spread of the disease in our herd. The test put us on a basis where, so far as tuberculosis was concerned, there was no guesswork. Also, I think that an accredited herd has a certain prestige in the mind of the prospective buyer, which gives it more or less value as sound advertising."

Max A. Nash, Groveland Farm, Tracy, Minn., wrote a letter containing the above statements to the United States Department of Agriculture.

After honey is removed from the hive it should be prepared carefully for market by proper cleaning of the sections, and especially by grading and packing in strict conformity with established grading rules.

How Dipping Increases Milk Production; Feed Fattens Cattle Instead of Ticks

Here is one of numerous specific instances cited in support of the United States Department of Agriculture's claim that dipping dairy cows to kill the cattle fever tick does not cut down their milk production, but, on the contrary, actually increases their yield through the elimination of the parasites.

David Metzger, of Metzger Bros. Sanitary Jersey Dairy, Dallas, Tex., declares that since he started dipping his herd of 500 cattle the herd's production has increased 10 per cent; that before dipping was begun in Dallas County from 12 to 15 per cent of the herd was lost each year because of ticks; and that since he began dipping there have been no losses at all. Of the 500 animals in the Metzger herd, 300 have been in immediate use for dairy purposes.

More Milk as Ticks Go

"No detriment whatever has resulted from the dipping," says Mr. Metzger in a statement he has furnished to the Department of Agriculture. "There was a reduction in milk at one dipping immediately following each dipping, but it affected only one milking, and immediately thereafter the cows produced the original amount of milk. As the ticks were eliminated through the dipping, the dairy cows without exception would increase their production of milk. This was determined by the fact that the milk produced by each cow was weighed separately at each milking, and has been so weighed for the past four years."

Records that have been kept systematically prove that cows lightly infested with ticks produce 18.6 per cent less milk than do tick-free cows, while cows heavily infested produce on an average 42.4 per cent less milk than similar cows freed from ticks. This was established by the Department of Agriculture by records of yields kept over considerable periods for ticky herds before they were dipped and for the same herds after they were dipped.

What Tests Showed

A herd of 20 lightly ticked cows produced 29 quarts less milk per day, or a loss of 5,800 quarts in 200 days' milking, than 20 tick-free cows of the same kind. Twenty heavily ticked cows produced 67 quarts a day less, or a loss of 13,400 quarts in 200 days' milking, than 20 tick-free cows of a similar breed.

Reduction in milk flow does not always appear in the first milking that follows the dipping, even, but it is natural that after a milch animal has been driven a few miles to a vat and has gone through the excitement of dipping, her production should fall off slightly. But this temporary falling off soon disappears, and the dairyman who keeps records over any long period will find that getting rid of ticks will increase his actual milk production by as much as 42 per cent, the actual increase being according to the number of ticks that were sucking the blood that should have gone into the making of milk.

FLORIDA FERTILIZER PRICES TOO HIGH, DEPARTMENT SAYS

The prices quoted by fertilizer manufacturers for fertilizers to be delivered f. o. b. Jacksonville, for delivery in Florida east of the Apalachicola River are $3 a ton higher than the prices for similar goods to be delivered west of the Apalachicola River and in the cotton belt north of Florida. The reasons given for these higher prices are not satisfactory to the Department of Agriculture, as is shown in the following statement which is being made in letters to the several manufacturers:

"There appears to be a general agreement among the fertilizer manufacturers to charge a flat increase of $3 a ton f. o. b. prices at Jacksonville, Fla., on all fertilizers sold to the Florida farmers east of the Apalachicola River over the f. o. b. prices asked at Jacksonville for the same brands west of the Apalachicola River and in the cotton belt north of Florida. The reasons given for this increase are that the expenses of manufacture are greater, as a great many of the Florida growers send in their own formulas for special mixtures, and these mixtures have to be put up in small lots and specially stenciled. It is claimed further that the Florida trade is usually in small amounts of only a few tons to the customer. It is further claimed that on account of the greater danger from frost more crop failures are liable to occur, the losses through bad debts are greater, and in general that the selling expenses are greater.

Discordant Statement Shown

"A call by the department on the fertilizer manufacturers to justify this increase shows an absolute discordance of statement. For the cotton belt the cost of manufacture and overhead is reported to be no more for the spring of 1919 than for the fall of 1919. For Florida one manufacturer claims that it costs $1 a ton more to manufacture for Florida than for the cotton belt. Another one claims 60 cents a ton more for the fall trade than for the spring trade. Another one claims that it costs $2.02 less for the fall trade than for the spring trade. For selling and collecting one manufacturer claims that it costs $2 a ton more in Florida than in the cotton belt. Another one that it costs $1.04 more for the fall trade than for the spring trade, but that it costs $2.30 a ton more for the fall trade in Florida than for the fall trade in the cotton belt. Another manufacturer claims that it will cost $1.35 less for the fall trade than for the spring trade and 95 cents more for the fall trade in Florida than for the fall trade in the cotton belt. These discrepancies are too great to justify their claim that there should be a flat increase of $3 a ton.

Farmers Notified

"On account of the limited time and the limited appropriations of the department, it has been found impossible to verify these figures by an expert examination of the books. Under the circumstances the only thing the department can do is to state that in order to be sure no injustice may be done to you and in order that the supply of fertilizers to the Florida farmers may not be interrupted, the department will not require you to revise your figures at the present time, but to notify you that a statement will be issued to the farmers setting forth these matters in detail and notifying them that they ought to be able to obtain standard brands of fertilizers at the port of Jacksonville at the same prices that are accorded to the farmers of the cotton belt."

SCHOOL MILK FROM HEALTHY COWS

"I have had our cows at Belhaven College tested by representatives of the Bureau of Animal Industry as established by the Government and the value of this service is incalculable." This is quoted from a letter to the United States Department of Agriculture from W. H. Frazer, president of Belhaven College, Jackson, Miss.

"I am always assured that only healthy cattle are in the college herd, and I am able by reason of this test to say to patrons of the institution that all milk and butter served our students comes from healthy cows."

Slat or veneer barrels are too flimsy for potatoes. They crush and break easily and should not be used for heavy produce.

NATION-WIDE DRIVE TO IMPROVE ALL LIVE STOCK

(*Continued from page 1.*)

value of the products. The crusade of improvement now to be undertaken is the outgrowth of investigations in genetics, of live-stock observations in many countries, and a close study of public opinion. In most live-stock regions of the world a gradual evolution toward better live stock has been taking place for centuries. The rapidity of these changes has an important bearing on world commerce and on the prosperity of the nations in which improvement has been greatest.

Individual and community efforts in many cases have resulted in marked live-stock progress in small areas. The islands of Jersey and Guernsey are familiar examples of this kind of accomplishment, but no large country so far has endeavored in an organized way to improve all its live stock simultaneously.

Live-Stock Men Equal to Task

Officials of the Bureau of Animal Industry and others who have considered the problem from every angle are convinced that it is possible to hasten the natural course of live-stock evolution with benefit to the Nation. They are confident also that the live-stock men of the country are eager to undertake the task.

The means of accomplishing most of the improvement—which affects about 200,000,000 head of live stock, besides poultry—will be through wider distribution and increased use of pure-bred sires and dams.

Once the use of pure-bred sires becomes general throughout the country, the process of grading up will be rapid. Many experiments and also practical experience, when good sires are used, show that within three generations most of the individuals in a scrub herd headed by a pure-bred male resemble pure-bred animals in appearance. In a few more generations, under skillful breeding, the former scrub stock is graded up to such an extent that for production of meat and other animal products, they are practically as useful as pure breds. The chief difference between a "high-grade" animal and a pure bred is in the value for breeding. Only the latter can be used in producing pure-bred breeding stock. Moreover, only pure breds are eligible to registry.

Official Emblem to Be Furnished

The Department of Agriculture, through its cooperative State agencies, is preparing to supply live-stock raisers with printed information that tells in popular language the best animal-breeding methods and the advantages to be derived from their use. In addition, the Department of Agriculture is to furnish an official emblem, suitable for display, to every farmer agreeing to use only pure-bred sires and in other ways to cooperate in the better-live-stock effort. To obtain the emblem a farmer or breeder will be asked to fill out a simple blank showing the number and kind of live stock he possesses and also to declare that all his male breeding animals are pure breds. From the number and nature of the blanks received the department will be able to measure the progress of the crusade, and at the same time obtain valuable statistical information which will be made public at suitable intervals.

The betterment of the Nation's live stock is by no means a new idea. The topic has been discussed at length from public platforms and in the agricultural press for many years. Agricultural colleges, breeders' associations, various live-stock organizations, banking and business interests, live-stock judges and experts—these and other forces are responsible chiefly for the progress already made and the sentiment for further development.

Organization of Campaign

A general coordination of the work, however, now seems desirable, with a minimum of red tape and a maximum of red blood. So far as the activities of the Department of Agriculture in the crusade are concerned, the Bureau of Animal Industry, in cooperation with the State colleges of agriculture, will be responsible for live-stock policies, especially the breeding work and scientific problems. The States Relations Service of the department will work in cooperation with the colleges of agriculture for carrying the plan of action through the extension divisions to every live-stock owner who can be reached. County agents and other field workers of the department and the colleges will be local sources of information and assistance.

While it is believed that stockmen of the country naturally look to agricultural officials to inaugurate a crusade of this kind, the problem primarily is one of adequate production and effective distribution. Responsibility for success depends accordingly on breeders and all live-stock owners.

Response to Will of People

For several months the department has been making an analysis of live-stock sentiment as expressed in the farm press and in correspondence received in its various offices. Of all the topics discussed the need for a better quality of domestic animals has been preeminent.

To make the crusade against scrub live stock most effective the department welcomes constructive ideas and suggestions from all sources. The following classes of live stock are to be included in the campaign for improvement: Cattle, horses, asses, swine, sheep, goats, and poultry.

Many Problems—None Insurmountable

In spite of the conspicuous merits of the task about to be undertaken, there are also a number of obstacles. It is recognized that sentiment in favor of pure-bred sires, while strong, is by no means unanimous. To win the support of those who, through lack of interest or opposition, fail to take their part in the crusade against scrub live stock is one of the problems to be met.

The cost of desirable pure-bred sires is another important factor which has long been an obstacle to live-stock improvement. Cooperative ownership divides the expense considerably, and the increased value of the young stock raised also helps to overcome that objection. In addition the campaign is expected to stimulate a greater production of pure-bred breeding stock of good quality.

The question of controlling the spread of live-stock diseases when animals are transferred from one herd to another or are used in community circuits, is still another problem. This matter, however, can be handled by vigilance in field inspection and by the adoption by breeders of well recognized preventive measures.

There are other problems also more or less knotty, but not presenting difficulties of an insurmountable character. In connection with the drive on scrub sires there will also be waged a campaign against the "scrub pure bred," as it is called, in the endeavor to eliminate, as breeding animals, pure breds of inferior quality. It will be observed that the plan in no way interferes with any work in live-stock improvement now being conducted, but instead it is expected to make all the work more definite and effective by providing official recognition for progressive breeders, including members of boys' and girls' clubs. Friendly competition is expected to spring up among communities and entire States, each of which will seek to excel in the rate of live-stock progress.

Sacks do not sufficiently protect new potatoes from cuts and bruising. If they are used, those holding from 90 to 120 pounds are the most desirable from the standpoint of careful handling and ventilation of the contents.

If potatoes are shipped in stock cars, it is generally advisable to protect them from the sun and weather by lining certain of the open parts with strong building paper.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

How a "Sucker" Was Saved.

A city man got a very glowing circular from a Chicago "development company" offering him 10 acres of land in Florida for the surprisingly small sum of $2,500—a "peanut unit" the circular called it. He could grow, the circular said, a thousand bushels of peanuts on his 10 acres and could sell the peanuts—allowing for low prices—at $2 a bushel. The city man was impressed; but he sent the circular to the United States Department of Agriculture with a query as to whether or not the investment was a good one. Following are some sentences from the letter he got in reply: "The literature is of the kind designed to deceive city people in the North and West who do not know anything about farming." "The average return from 10 acres of peanuts would not exceed $300 to $500." "You could buy a 100-acre farm in almost any of the counties of western Florida, including the one mentioned in the circular, for the price these people ask for 10 acres." "The whole 'unit' system, whether it is pecans, peaches, figs, cane, peanuts, hogs, or what not, is simply a means of selling land at three to five times what it is worth to ignorant or unwary small investors." "To pay $2,500 for this 10 acres of land would stamp you as a 'sucker' of the rankest class." "All this is without reflecting in any way on Florida, for it is a good State and lands are comparatively cheap there."

Guard Against Hessian Fly Now.

Losses to the present winter wheat crop from Hessian fly have been rather wide spread. Losses are reported in the Shenandoah and Cumberland valleys. Straw-fallen wheat due to this cause was commonly observed in these regions where the percentage of infestation by the Hessian fly has very materially increased this year. Reports received from the western half of the Mississippi Basin also indicate increased abundance of the pest.

Growers of winter wheat should put into practice at once measures advocated by the United States Department of Agriculture to avoid losses to the 1920 crop by the Hessian fly. There is no remedy for this pest when once it takes possession of a crop of wheat. Injury can be prevented solely by keeping the fly out of the wheat. The department experts say the following methods are effective:

Do not sow wheat on stubble if possible to avoid doing so.

Plow under all infested stubble and ruined wheat where practicable soon after harvest, especially where this does not interfere with the growing of clover and forage grasses.

Destroy all volunteer wheat by harrowing, disking, plowing, or otherwise.

Plow all land to be sown to winter wheat as early and deeply as existing conditions permit and prepare a thoroughly pulverized and compacted seed bed.

Conserve moisture against a period of drought at seeding time.

Use the best seed procurable.

Keep the soil in good tilth and, most important of all, sow winter wheat during the fly-free period as advised by local farm advisors or State experiment stations.

Community action in these measures is absolutely essential to complete success.

Honeybees Making a Record.

The honey crop of the United States was 92.1 per cent of normal on July 1, according to the estimates of the United States Department of Agriculture. Reports to the Bureau of Crop Estimates warrant the estimate that the yield of surplus honey per colony was 25.8 pounds and that about one-half of the annual product per colony was realized by July 1. At the same date in 1918 the estimated surplus was 21.4 pounds per colony. At the same date in 1917 it was 13.5 pounds. The high condition of 92.1 per cent of normal on July 1 this year compares with 86.7 in 1918 and 86.3 in 1917.

First TB Election Ordered.

The first election in the United States to decide whether or not a county should eradicate tuberculosis from its herds of cattle has been ordered to be held in Clay County, Miss., on September 2. The election was ordered by the county board of supervisors after a petition asking for it had been presented by a group of citizens.

The results of this election will have much more than local interest, because the election may be the forerunner of hundreds or thousands of others in other sections of the country.

Leaky Potatoes Shown in Films.

A leaky potato is rightly named, according to a moving-picture film that has just been issued by the United States Department of Agriculture. If you squeeze a leaky potato in your hand it will contract like a sponge, fall apart, and nothing will be left of it but a mass of rot.

How the "leak" disease gets into the potatoes is shown in the motion picture, which is to be exhibited in the California delta region, where the trouble causes large losses. The hoe-shaped forks that are used in this region for potato digging often pierce the tubers and the wounds thus made allow the entrance of the fungus that causes the disease, which is always on the watch for a point of attack. It is also shown that the common practice of breaking off the knobs or second growths from the tubers likewise opens the way for the "leak" disease. The lesson of the film is that potatoes which are wounded in any way should not be stored or shipped with sound tubers.

The department has also issued a motion picture showing the magnitude of the potato industry in California, how efficient methods of farming and shipping have been developed, and how losses can be prevented.

Have Eyes on Tomato Products.

Federal food inspectors have been instructed to give special attention this season to the sanitary condition of tomato-canning factories in order that tomato products which enter interstate commerce may comply with the provisions of the Federal food and drugs act. This is announced by officials of the Bureau of Chemistry, United States Department of Agriculture, who are in charge of the enforcement of that law.

Tomatoes and tomato products, such as catsup, pulp, and paste, are highly perishable, and, unless handled at every stage according to the best commercial practice and correct principles of sanitation, are likely to become contaminated through partial spoilage. Foods consisting in whole or in part of decomposed material are considered adulterated. After extensive investigations of methods for putting up such products on a commercial scale, the bureau specialists have recommended methods which are not

only economical and efficient from a profit standpoint but which are best from the point of view of sanitation.

Of more than 6,300 cases under the Federal food and drugs act terminated in the Federal courts, approximately 600, or about 10 per cent, were based upon tomato products. As a result of the investigational and regulatory work, the last two or three seasons have shown a marked improvement in the quality of tomato products.

Much TB Testing in Virginia.

Virginia has a larger percentage of dairy animals which have been tested with tuberculin and found free from tuberculosis than any other State. The Old Dominion has 79 "accredited herds" on the list of the United States Department of Agriculture.

In the 12 months preceding March 1, 1919, a total of 22,571 cattle were tested in Virginia, under the cooperative plan, and 772 reacted to the test, a percentage of only 3.4. This is a slight decrease from the number of reactors located during the preceding year, during which 4.4 per cent of the cattle tested were found to be diseased.

Elks Indorse Federal Plan.

The Grand Lodge of the Benevolent and Protective Order of Elks, at its recent meeting in Atlantic City, indorsed the program for the conservation of the elk herds in the United States, as formulated by the Forest Service of the United States Department of Agriculture. A committee was instructed to cooperate with representatives of the Federal Government in putting this program into effect. The meeting also memorialized the United States Congress to pass a bill providing for the addition to the Absaroka and Gallatin Forests of a narrow strip of land extending north from the Yellowstone National Park and situated between these forests, with the authorization to accept as gift any private lands that may be offered, or to give other Government lands in exchange for private lands needed for elk protection. This provision is extended to private lands within national forests adjoining the Yellowstone National Park.

Dry Weather Shifts Labor.

Because of the protracted drought in the Northwest, the irrigated region of eastern Montana has recently been able to recruit enough labor to carry on successfully all its necessary farm work, although previously there has been a decided shortage in farm help. Extreme drought has temporarily caused the abandonment of farm work in the suffering sections of the Northwest, so that the labor supply in many instances has shifted to the irrigated localities where work is abundant.

Cabbage Seed Promising.

Approximately 600 acres of cabbage seed are being grown this year in the neighborhood of La Conner, Wash., the fields ranging from 5 to 60 acres, report specialists of the United States Department of Agriculture. As the season has been favorable for the crop, growers are prophesying high yields. By the third week in June the fields had passed the pollination stage, and pods were developing rapidly. Harvesting will begin the latter part of July. Cabbage usually is grown in rotation, following hay. On the expiration of the two years required for the cabbage-crop production, oats are planted, followed by clover and timothy. Rotation of crops minimizes the perpetuation of fungous diseases in the soil.

Forest Receipts Increase.

Net receipts from the national forests for the year ending June 30, 1919, reached a total of $4,358,414.86, making an increase of $783,484.79 over the receipts for the previous year, and setting a high-water mark in receipts. There has been a gradual increase in receipts from $757,813.01 in 1906, when supervision of the national forests was placed under the Forest Service of the United States Department of Agriculture.

Pure Breds on Project Farms.

Reclamation farmers of the Minidoka irrigation project have recently purchased 14 Shorthorn and 8 Holstein bred heifers for the improvement of their herds. The average cost of the Shorthorns was $247.85 and of the Holsteins $316.38 apiece, all the animals being pure bred. The cattle were appraised on delivery at the project, whereupon the farmers drew lots for the stock and paid for the animals on the basis of their appraisement value. This shipment is typical of several others which recently have been distributed among the project farmers of the western dry lands.

1918 Cotton Crop Worth $2,067,000,000.

The 1918 cotton crop, lint and seed, was worth $2,067,000,000 to the producers. This is about three times the value of the cotton crop of 1914 and is twice the value of the crop of 1913, which had the highest value of record. The computation has just been made, at the close of the cotton year, by the United States Department of Agriculture, Bureau of Crop Estimates, based on average monthly prices received by growers and on monthly marketings.

MILLIONS OF CATTLE TICKS WERE CLEANED OUT IN JUNE

Despite extensive rains, swollen streams, flooded vats, and shortage of labor for grain harvesting, more than 7,000,000 dippings of cattle to get rid of the cattle-fever tick were supervised in June by Federal, State, and county inspectors. The actual number of dippings was 7,097,260, and while that is 524,009 less than the dippings in May, it is thought to be a remarkably good one in view of the adverse conditions with which the tick fighters had to contend.

There is another reason, too, for the fewer dippings in June, and a reason that is cited with solid satisfaction by officials of the Bureau of Animal Industry of the United States Department of Agriculture. In areas where "mopping up" work was conducted in the spring, further dipping has been found unnecessary because of the absence of ticks. That is an indication of the condition that will become more general in the tick-infested sections.

The healthy progress of the antitick campaign is shown by the following summary of June dippings:

Alabama, 994,275; Arkansas, 665,479; Florida, 275,687; Georgia, 528,409; Louisiana, 1,505,614; Mississippi, 423,686; North Carolina, 7,589; Oklahoma, 627,572; South Carolina, 143,641; Texas, (north), 1,612,969; Texas (south), 322,339.

Dipping vats in operation number:

Alabama, 7,851; Arkansas, 3,582; Florida, 1,325; Georgia, 2,407; Louisiana, 4,545; Mississippi, 5,726; North Carolina, 543; Oklahoma, 1,137; South Carolina, 827; Texas (north), 4,649; Texas (south), 1,197.

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for assistant observer, Weather Bureau, for unmarried men, on August 20, September 17, and October 22, 1919, to fill vacancies in offices of the Weather Bureau throughout the United States, and in positions requiring similar qualifications, at $1,080 a year, or higher or lower salaries, will be filled from this examination. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

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NEW WORK PROVIDED FOR IN AGRICULTURAL FUNDS FOR 1920

Heavy Reduction Occurs in Funds for Extension Work

Wool Scouring Waste Investigations May Mean Great Saving—More Work Against Insects

While the Agricultural appropriation bill for the fiscal year 1920, approved by the President on July 24, 1919, shows an actual net increase of $3,899,575, excluding items transferred from emergency appropriations, over the funds provided by the 1919 act, there has been, in fact, a considerable reduction in the appropriations to the department for agricultural activities. The emergency food-production act, which expired on June 30, carried an appropriation of $17,631,863 for emergency work and only approximately $2,107,880 of this amount was transferred to and included in the new bill. In other words, the total funds during 1920 for the lines of work usually provided for in the regular bill as well as those conducted under the terms of the emergency food-production act are approximately $11,507,455 less than the aggregate amount available during the fiscal year 1919.

The heaviest reduction falls on the States Relations Service, the branch of the department that conducts extension work in cooperation with the agricultural colleges and experiment stations through county agents, home demonstration agents, and others. Last year there was provided for this work, in addition to the funds available under the Smith-Lever Act, a total of $7,304,000. This year the total, aside from the Smith-Lever appropriations, is $2,904,000, a reduction of more than $4,000,000.

The Bureau of Markets also carries a heavy reduction and many of its lines of emergency work have been discontinued entirely or greatly reduced. No funds have been provided for the continuation of the city market reporting service. The market-news services on live stock and meats, dairy products, fruits, and vegetables, have been greatly curtailed. The leased wires in the South have been cut off and all west of Denver shortly will be eliminated. The number of field stations has been greatly reduced. Work on preservation by refrigeration of fruits and vegetables in transit has been materially curtailed. All food surveys, including the dietetic survey, have been discontinued and other lines of activity have been seriously affected by the discontinuance of emergency funds. Other branches of the department likewise have been compelled to curtail some of their activities.

Compared with some other years, the number of new projects provided for in the Agricultural Appropriation Act for the fiscal year 1920 is small, but some of them are of much importance. The significance of a project can not be measured, of course, by the amount of money appropriated with which to begin it.

For the Bureau of Chemistry, an appropriation of only $9,000 provides for investigations and developments of methods in utilizing wool scouring wastes that may ultimately mean millions of dollars to the country. This investigation was begun in the fall of 1918 under an allotment from the fund for stimulating agriculture, but the money was not available until late in October, and not a great deal was accomplished. During the war the price of wool grease rose from 2½ cents to 25 or 28 cents a pound, and the price of carbonate of potash rose from 4 or 5 cents to as high as 80 or 85 cents a pound. The result was that a number of plants were installed for the recovery of wool grease

(*Continued on page ten.*)

VALUABLE STOCK—VALUABLE OFFSPRING

In several counties of North Carolina more pure-bred live stock has been purchased during the past year at the higher prices which have prevailed than in any other year. Hogs were never so high, and yet hundreds of boys bought pure-bred pigs at high prices with the expectation of selling their offspring. Through the county agents many hundreds of pigs bred by the boys have been sold at good prices, and this is stimulating the extension of pure-bred hogs.—U. S. Department of Agriculture.

DIRECT SELLING OF COTTON URGED AS RAISER'S REMEDY

Farmers' Organizations Can Cut Down What Middleman Gets

Department Shows How North Carolina Mills Paid $15,000,000 More for Cotton in 1918 Than Farmers Received

How much difference should there be between the price that a farmer gets for his cotton and the price that the mill pays for the same cotton?

The North Carolina cotton mills paid about $15,000,000 more for the cotton they used last year than the farmers received for it.

Getting down to a unit basis, the farmer who grew a bale of cotton lacked $11.50 of getting what it was worth to the cotton mill.

A little of the $11.50 went to the railroad for hauling the cotton to the mill. As most of the cotton consumed by the North Carolina mills is grown in North Carolina and near-by sections of South Carolina and Georgia, the freight item did not amount to a great deal—probably 30 cents a hundred, or 30 points on the cotton involved. The average cost of exchange on the draft bill was probably one-eighth of 1 per cent. Including other necessary costs of selling and delivery with these items, the total expense would be about $2.50 to $3 a bale in practically all cases.

Profit Disproportionate

The natural conclusion is that the farmer is getting less for his cotton than he should have, or that the consumer of cotton cloth is paying more for it than he should pay—maybe both—while the middlemen are making a profit out of proportion to the services they render.

These facts were ascertained by the United States Department of Agriculture, and are embodied in a circular, "Suggested improvements in methods of selling cotton by farmers." The solution suggested is direct sales, or, in any event, less indirect than at present. That would probably involve cooperative selling organizations among cotton growers

and direct dealing by such organizations with the cotton mills. Certain difficulties in the way of direct selling are pointed out and suggestions made as to means of overcoming them. Suggestions apply, to some extent, to the entire cotton-growing territory, but more particularly to sections, like eastern North Carolina, where cotton mills are in close proximity to the cotton fields.

The first suggestion is that farmers grow the kind of cotton the mills need. It is pointed out that most local cotton mills use only one or two grades and usually only one staple of cotton, and that it is necessary for the farmer or some other agency to furnish what the mill demands.

A compress and ample storage and shed space at central points in the main producing areas, it is suggested, would improve conditions.

Classing Would Show Real Value

A very important suggestion is the establishment of a disinterested classing service that would serve the interests of both the producer and the consumer. This would enable the farmer to know the value of his product, and cooperative selling would better enable him to realize that value in dollars and cents.

As to North Carolina, better ginning facilities are needed. The old ginneries are not capable of pressing large or average-sized bales to the density usually obtained in other States. As a result, the average weight of bales in North Carolina is low and the mills complain about it.

Less damaged cotton should be shipped to the mills. Mill owners say that they have neither the inclination nor the facilities for conditioning cotton, and wish to buy only from shippers whose cotton has already been put in the best possible condition. This objection could be met by farmers' organizations.

The final suggestion is that farmers grow better varieties of cotton. There, again, the benefits of organization are apparent. Many buyers, knowingly or unknowingly, buy the better staples without paying a proper premium for them. The result is that the farmer is inclined to stop growing the better variety out of which the buyer makes an abnormal profit, but for which the grower receives practically no more than for an inferior variety.

Gooseberries are grown slightly farther south than currants and seem to endure the summer heat somewhat better. More spraying, however, is necessary to keep the foliage of currants and gooseberries in a healthy condition in the southern part of their range than in the northern part.

KANSAS ASKS DEMONSTRATIONS OF FEDERAL WHEAT GRADING

Recognizes Importance of Understanding System at This Time

Department Sends Supervisors at Governor's Request; Work in Other States; Relation of Grading to Government Purchasing

At the telegraphed request of Gov. Allen, of Kansas, the United States Department of Agriculture has assigned six Federal grain supervisors to demonstrate in Kansas the Government wheat-grading methods. They will work in cooperation with the Kansas State grain-inspection department and under the joint direction of that department and the Federal grain supervisor's office at Kansas City.

"We are offering no criticism of the Federal standards for wheat but are merely seeking to have them administered as accurately as possible," said Gov. Allen, who also expressed the opinion that grading demonstrations are needed "while the State is becoming acquainted with the new grading rules and while there is so much wheat of uncertain grades." Gov. Allen also suggested that the Federal grain supervisors should visit as many local shipping points as possible to check the grading of the farmers' wheat, to explain to buyers and farmers the correct methods of grading under the new rules.

Should Understand Grading

Unusual crop conditions due to weather have increased the importance of a correct knowledge of the factors entering into the grading of Kansas wheat. Grain grading demonstrations already have been held by the department's Bureau of Markets this year in Ohio, Indiana, Iowa, Nebraska, Missouri, Oklahoma, Texas, Virginia, Pennsylvania, Washington, Oregon, and Idaho. Others have been planned in Minnesota, North and South Dakota, and Montana. The following men have been assigned to the emergency work in Kansas:

E. L. Morris, division supervisor, Kansas City, Mo.; R. D. Jarboe, grain supervisor, Kansas City; Hazen P. English, grain sampler, Kansas City; J. R. Mathewson, grain supervisor, Minneapolis, Minn.; J. H. Edwards, grain supervisor, Chicago; J. H. Frazier, assistant grain supervisor, Chicago.

That farmers may better understand the relation of the grain grading work of the Bureau of Markets to the operations of the United States Grain Corporation, the Department of Agriculture makes the following explanation:

Increased Importance of Grading

The special importance at the present time of a correct understanding of the grading of grain according to Federal standards at local points is the result of the recent instructions of the United States Wheat Director and the contract between the United States Grain Corporation and the local interior dealer or miller, as provided in both contracts, that "The dealer, in buying wheat from the producer shall purchase on the proper grade and dockage, under Federal standards, and shall pay therefor not less than the guaranteed price based on such proper grade and dockage, at the terminal most advantageously reached, less freight and less a reasonable handling margin."

Therefore, since the grading of grain correctly according to the Federal grades reflects the proper price schedule at the local points, it is important that the local buyer be fully informed as to the requirements of the official standards in order that he may correctly apply the grades, and that the farmer be properly informed as to the grade requirements and their application in order that he may know whether the country dealer is correctly grading his grain.

The Grain Corporation has required the proper application of the Federal grades at country points and has made administrative provisions for the enforcement of this requirement in cases of a dispute between the country buyer and the farmer. This increases the importance of the farmers' and country elevator managers' intelligent observance of the inspection of the grain. The grain standards act applies to wheat which is sold, offered for sale, or consigned for sale, and shipped or delivered for shipment in interstate or foreign commerce by grade; generally speaking, the grading of grain by local wheat buyers throughout the United States does not come under the specific jurisdiction or authority of the Department of Agriculture. Consequently, the work of the department's supervisors in this connection will be purely educational.

The contract between the grain dealers and the United States Grain Corporation also provides that "the dealer shall keep a record, showing all purchases from the producer, name of the seller, date, quantity, grade, and dockage fixed, and price paid, and reasons for fixing the grade under No. 1, including test weight; and on all parcels of wheat on which there is a dispute, as to grade and dockage or price, between the dealer and the producer at the time of delivery, a nota-

tion thereof shall be made on the records of the dealer and a sample shall be drawn by the producer and the dealer, and forwarded in a proper container to the vice president of the Grain Corporation, in the zone in which the purchase is made, for his use in the determination of the dispute. The determination of the vice president shall be final and conclusive, unless an appeal from such determination be filed within 10 days with the United States Wheat Director by either the producer or dealer. In case of appeal, the decision of the United States Wheat Director shall be final and conclusive."

Purchasing and Grading in Different Hands

Matters relating to the purchase and sale of wheat are handled by the United States Grain Corporation. Where the inspection and grading involves the settlement on a load of wheat purchased by a local dealer from a farmer, any information desired should be directed either to the vice president of the United States Grain Corporation, located in the zone in which the purchase is made, or should be addressed to the United States Wheat Director, 42 Broadway, New York City. If a farmer or dealer, however, desires information to enable him to determine how the Federal grades should be applied, he can secure this by visiting or writing any office of Federal grain supervision, or the Department of Agriculture at Washington, D. C., or by submitting a sample to the nearest licensed grain inspector to receive an official sample inspection on that sample. Licensed inspectors are not permitted by the Department of Agriculture, however, to grade officially an entire load of grain unless the sample be taken under the supervision of, or by the inspector himself. Therefore, the grade would apply to the sample only. The grade may or may not be representative of the entire load from which the sample was taken.

In cases of dispute as to the correct grade or dockage, under the rules of the Grain Corporation, the grain dealer and the farmer may agree on a sample as being representative of the load in question and submit this sample, together with all the facts relating to the transaction, to the vice president of the Grain Corporation in the zone in which the transaction takes place for determination of the question.

Currants and gooseberries are very hardy and withstand extremely low temperatures; in fact, if windbreaks are provided, most varieties are able to withstand the severe conditions in most parts of the upper Mississippi Valley and the northern Great Plains area.

FOOD SAVED FROM SPOILAGE BY WORK AMONG SHIPPERS

Commercial Methods Improved by Work of Department

High Cost of Food Makes Necessary Every Effort to Stop Loss; Proper Storage Is Important

Methods for preventing the spoilage and loss of large quantities of poultry, eggs, shrimp, fish, and other food products have been developed by specialists of the Bureau of Chemistry, United States Department of Agriculture, who have been investigating commercial practices in handling, shipping, and storing foodstuffs.

The rapidly increasing cost of all food products makes it highly necessary to reduce spoilage by every available means, say the specialists. Much loss of foods due to spoilage while in transit and in the hands of dealers can be prevented if correct methods for packing, shipping, storing, and handling are followed from the time the foods are produced until they reach the consumer.

Methods for preventing spoilage are based upon extensive laboratory studies of the habits and methods of operation of the minute bacteria, molds, or yeasts which produce spoilage. There are many varieties of these tiny organisms, and each variety acts in its own peculiar way. The conditions which permit or promote the growth of these destructive enemies, as well as the conditions which retard or entirely prevent their growth, are learned by extended investigations.

Experiments are made to determine the best ways to apply the principles of sanitation, sterilization, dehydration, and refrigeration to different classes of foods under varying trade conditions. The results of the experiments are then tried out on a commercial scale and the most efficient and practical methods adopted. The improved methods are introduced into the industry by means of bulletins which give working plans and information regarding them, and through the personal assistance of technical specialists who are sent to cooperate with the leaders of the industry who desire their services.

Eggs Saved From Loss

Methods for packing and shipping eggs so as to reduce the enormous losses, due to breakage in transit, have been applied through the cooperation of the United States Railroad Administration and shippers of eggs. In the experimental work on which the methods were based, an instrument for measuring the shocks to which cases of eggs are subjected while in railroad cars was devised and found to be highly useful in determining the causes of breakage. Instructions as to how to prevent spoilage in eggs by proper candling, cooling, and packing have been issued in a number of pamphlets.

Plans have been furnished for small precooling plants that will enable small shippers of poultry to ship dressed chickens and turkeys with a minimum loss from spoilage. Model refrigerator cars have been built and extensive experiments made in the shipping of poultry for long distances. The best methods for killing, dressing, packing, and shipping poultry have been determined and are being adopted generally by the poultry industry.

Studies have been made to prevent spoilage in the commercial canning of tomatoes, catsup, tomato pulp, and similar products. Bulletins have been issued giving the results of the investigations and outlining practical factory methods which reduce spoilage to a minimum.

Improved methods for handling, packing, and shipping shrimp and sardines have been worked out. Investigations directed toward the improvement of methods for canning salmon are now under way.

Much Fish Unused

Experiments are being made to determine the best methods of shipping fresh fish to inland cities. There is an unlimited quantity of fish which can be utilized to supplement the meat supply of the country. Fish is a palatable, highly nutritious food, which has not been used extensively in inland cities because of the difficulty of securing a regular supply in prime condition. Many carloads of fresh fish in excellent condition are now being shipped from the Gulf and Atlantic coast to the cities of Ohio, Indiana, Illinois, Kentucky, and Tennessee. When fish are properly handled there is little danger of spoilage.

Fruits, and to a limited extent vegetables, have been preserved by drying for many years. However, many of the dried products were so much less palatable than the fresh or canned articles that the drying industry has not developed to the extent justified by its possibilities. Experience has demonstrated that many highly perishable fruits and vegetables can be dried in such a manner as to keep indefinitely. Experiments are now being conducted with a view of developing methods of drying that will preserve the delicate flavor of the original products in order to establish in the United States a permanent drying industry.

Information regarding improved methods for handling, packing and shipping poultry, eggs, fish, and tomato products will be sent upon application to the United States Department of Agriculture.

LOW FREIGHT RATES GRANTED TO SAVE DROUGHT-HIT CATTLE

Department Shows Need to Officials of Railroad Administration

Half a Million Animals Probably Will Be Moved from Northwest; Big Organization Starts Work to Prevent Loss

Emergency freight rates to afford relief in drought-stricken territory of the Northwest have been announced by the Railroad Administration after conference with officials of the United States Department of Agriculture. They may mean the difference between millions of steaks and roasts in as many homes throughout the country and dry bones scattered over the farms and ranges of the Northwest. As a result of the rates probably half a million starving cattle will be moved from the stricken regions of Montana, Wyoming, and North Dakota to pastures in other States, and feed will be shipped into the drought country to sustain other hundreds of thousands of breeding animals.

For some time past the Department of Agriculture and the Railroad Administration have been working out a basis of action.

Rate Cut in Half

The emergency rate for feed shipped into the drought-stricken territory is one-half of the regular rate from points on railroad lines serving the destination territory. Practically all kinds of feed are provided for. Cottonseed cake and cottonseed meal, however, are not included under the half rate, but may be shipped from Texas, Oklahoma, Arkansas, and points in Louisiana on and east of the Mississippi River at rates ranging from 50 to 60 cents a hundred.

The rate for shipping cattle out of the drought-stricken area to pasture or feed and later returning them amounts to a round trip rate of one and one-third the regular one-way rate. That is, animals may be shipped to pasture or feeding points upon payment of the regular rate, and at any time prior to June 1, 1920, may be returned to the point of origin upon payment of one-third of the regular rate. A large proportion of the animals brought out will never go back, but after fattening on grass or feed will go to the slaughter pen. Provision is made for this by the granting of transit rates, which means that the owner pays the through rate from the point of origin to the market instead of two local rates, one from the point of origin to the pasture point and one from the pasture point to the market. This privilege is extended to 12 months from the date of original shipment. This is an extension of the transit rate on sheep that has been in existence for a long time, but is now made to apply also to cattle, hogs, and horses.

Organization at Work

The Department of Agriculture is throwing into the work the same organization that saved hundreds of thousands of cattle last year in the drought-stricken areas of the Southwest. The Bureau of Animal Industry will establish an office at Billings, Mont., for dealings with owners who desire to get their cattle out to pasture or feed. A distributing station will be established at St. Paul, Minn. This office will locate available pasture and feed supplies and distribute animals sent out from the dought-stricken areas. The Bureau of Markets will conduct the same kind of feed reporting service that it did in Texas last year, and the States Relations Service, through its county agents and otherwise, will give assistance all along the line.

BETTER SIRES—BETTER STOCK

The first organized crusade in a large country to improve all its live stock simultaneously will get under way in the United States October 1.

Its slogan.—BETTER SIRES—BETTER STOCK.

Its aim.—To hasten the replacement of the multitude of scrub domestic animals with pure-bred or high-grade stock and to improve the quality of pure breds themselves.

Its main method.—Use of only good pure-bred sires in breeding. Sires in many cases to be owned cooperatively or exchanged.

Live stock included.—Cattle, horses and asses, swine, sheep, goats, and poultry.

Agencies cooperating.—The United States Department of Agriculture, the State agricultural colleges, State live-stock officials, live-stock associations, county agents, farmers' organizations, agricultural and live-stock journals.

Reasons for campaign.—Quality and productive capacity of the average American farm animal are still low. Millions of farmers are wasting time and money on animals that give less returns for the same expenditure than would better stock.

Public cooperation.—More than 500 live-stock specialists have made suggestions on the plan of campaign. Further constructive ideas and suggestions from any source will be welcomed by the United States Department of Agriculture. The following statements embody about nine-tenths of the ideas advanced by the specialists:

Plan simple enough to be easily followed.

Federal department's chief interest will be to reinforce work of States and counties, not to concern itself with local details.

Department's energies mainly along educational lines, although many suggestions of legislation against scrub sires have been made.

Plan includes everyone who keeps any kind of domestic live stock, from the boy or girl with a few chickens to the extensive ranchman or breeder of live stock.

Scrub pure-bred sires as well as common scrubs should be eliminated.

Feeding and care fully as important as good breeding.

Local agricultural leaders in every community to decide whether campaign shall be intensive or conducted slowly.

Department to keep records of progress by counties and announce results periodically. States to be furnished with records, which they may keep as they desire.

Emblems to be furnished keepers of pure-bred sires of good quality in all their classes of live stock; an official recognition of meritorious effort, but not a guaranty of the quality of live stock.

Emphasis on the use of good pure-bred sires rather than on ownership.

Individual benefits and more efficient production to be stressed, rather than increased number of animals.

Each county to follow its own ideas as to the kind of stock its farmers should keep.

Farmers who do not care to take part will be asked to let their children do so.

The plan of campaign interferes in no way with any work in live-stock improvement now being conducted, but makes all the work more definite and effective by providing official recognition for progressive breeders.

NO ANIMAL INJURED

"From experience and observation covering a period of 10 years, I believe the work for the eradication of tuberculosis conducted by the Bureau of Animal Industry is of immense value to the live-stock industry," says a letter to the United States Department of Agriculture from Theodore Thormodson, proprietor of the Pioneer Stock Farm, Hanska, Minn.

"I regard the tuberculin test as a safeguard to live-stock investors.

"I have seen nothing to lead me to believe that the tuberculin test has injured a single animal."

Four factors limit the growing of currants and gooseberries in the United States: The white-pine blister rust, the currant maggot, the lack of moisture, and the heat of summer.

MUST POISON BOLL WEEVIL BY WELL-PLANNED SYSTEM

Cotton Growers Otherwise Risk Loss of Time and Money

Federal Entomologists Warn Farmers Against Useless Efforts in Present Panic; Skimping in Campaign Is Poor Economy

Useless and expensive attempts to poison boll weevils after the infestation has become too general are likely to result from the present boll-weevil panic, according to cotton experts of the United States Department of Agriculture. Many cotton growers, they say, believed that the weevil had passed them by and took no precautionary measures until their fields were overrun, and are now trying to get poison and dusting machinery in a hurry under conditions that absolutely do not warrant poisoning.

The experts warn growers of the difficulties of beginning poisoning after a field has become completely infested. Poisoning tests have been successful with complete infestation, but it is a much more difficult matter than merely holding a developing infestation in check. It requires not only several more applications than would have been necessary if treatment had been started earlier, but much more poison is necessary for each application.

Stocks of Poisons Low

Another point on which a warning is sounded is the difficulty of getting poison in time. The supply is very short, dependent upon the stocks of a few northern factories, and shipments are bound to be slow. Still another question which should be carefully considered, they say, is whether or not the cotton is actually worth poisoning. There is a great deal of cotton this year, even in the best producing sections, that will not justify the expense.

If these limitations are observed, the experts say, the yield of cotton under boll-weevil conditions can be considerably increased by poisoning with powdered calcium arsenate. This chemical, as an insecticide, is decidedly a new development, the supply is limited, and most cotton growers are not yet familiar with the necessary composition of the chemical, or with the proper methods of applying it.

The cotton experts of the United States Department of Agriculture are undertaking to furnish the necessary information. They say, however, that their advice must be taken as general and not as definite in its application to all cases. They recommend that all planters who plan to poison weevils communicate with the department's Delta Laboratory at Tallulah, La., describing their local conditions. The laboratory experts will then give them the most definite advice possible.

It is impossible to say just what gains in production may be expected from weevil poisoning. All experiments have shown, however, that there is rather a large margin of profit from the operation in reasonably good land. Poisoning is probably not advisable on land which would not yield at least half a bale to the acre if there were no weevils.

Skimping Is Poor Economy

While weevil poisoning has been successful, it has not yet entirely passed the experimental stage. For the present, it behooves all who are going to try it to place themselves on the safe side by doing it as nearly right as can be judged from present information. It is foolish, the experts say, to attempt to economize on a few pounds of poison or a hand dust gun or two. Unless the poison is properly applied in sufficient quantities, the injury will be about as severe as if poisoning had not been attempted, and the money spent in the operation will be lost. The department specialists urge that anyone who desires to poison make up his mind to use the proper methods or simply drop the idea altogether.

By far the best poison for weevil control is dry powdered calcium arsenate, but the department urges that it be bought on specifications. Otherwise, the material may be too low in arsenic content to poison the weevils successfully, or it may contain so much soluble arsenic that it will burn the plants, or it may be in such mechanical condition that it can not be used as a dust. Every man buying calcium arsenate should require that it conform to the following specifications: Not less than 40 per cent arsenic pentoxide; not more than 0.75 per cent water-soluble arsenic pentoxide; density not less than 80 nor more than 100 cubic inches per pound.

A number of chemical firms, the names of which will be furnished by the Delta Laboratory at Tallulah, La., are manufacturing this material. It may be bought, also, through some local seed houses and dealers in plantation supplies. Owing to the newness of the preparation, however, it is particularly desirable that the composition of the material be watched. All purchasers are invited to send samples, immediately upon receipt, to the Delta Laboratory. They will be analyzed free of charge and as quickly as possible. Samples of one-half pound each should be taken from several different packages in each shipment and submitted separately. If the material conforms to the specifications given, it can not burn the cotton plants, and could be applied daily in unlimited quantities without danger.

Buy Plenty of Poison

The amount of poison required is a very important point. At least 5 pounds of calcium arsenate to the acre for each application is absolutely necessary. Advice has been issued from unauthorized sources that 2 or 3 pounds to the acre for each application is sufficient, but this advice is unsound and should not be followed under any condition. It is impossible to distribute so small a quantity of powder over an acre of cotton, and in order to make the poisoning effective, every bit of every plant must be covered with the exceedingly fine powder. The number of applications varies to some extent, but it will usually run about four. The farmer, therefore, should provide himself with at least 20 pounds of calcium arsenate for every acre of cotton to be treated. Farmers who have arranged to poison with smaller quantities than this are advised either to reduce the number of acres to be treated or to get more poison immediately. The supply is limited and probably can not be obtained later in the season. It is unwise to make one or two applications and then abandon the project. The early applications simply develop conditions to the point where later applications can be of real benefit in increasing production. The last application is decidedly an emergency proposition, and if it is delayed at all the situation may easily get out of hand.

Another tremendously important point is that each farmer be sure of suitable machinery with which to apply the poison. The supply of machinery is one of the limiting factors and no man should make arrangements for securing poison until he knows he can get dusting machinery for applying it.

Only two types of dusting machines have been tried out sufficiently to make certain of successful operation. One is a large power duster and the other is a small hand-gun duster. An intermedi-

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ONE COW EQUALS FIVE

A New Jersey boy was influenced to buy a high-grade cow for $155. The cow on freshening gave 24 quarts of milk and kept it up for a long period. The father owned 5 cows, the average cows for the neighborhood. They were fresh in the spring. Their product did not equal the product of the cow owned by the son—five times the labor and five times the feed, in comparison with one good cow.—U. S. Department of Agriculture.

ate type has recently been put out, but it is only in tentative form.

The power duster is a horse-drawn, motor-operated machine, blowing dust through five nozzles, spaced 4½ feet apart, and throwing out a bag of dust usually sufficient to cover seven rows. If the cotton is very dry and there is wind blowing, the machine can not be expected to take care of more than five rows at a time. It will probably cover six or seven acres an hour, which, if operated ten hours a day, six days in the week, will take care of 350 to 400 acres in a week. The average allotted to one machine should be limited to the area it can safely cover every week. Owing to the interruptions due to bad weather, which are bound to occur, daily operation can not be expected, and a safe allotment for one of these machines is probably about 300 to 350 acres.

Several satisfactory models of hand-guns are on the market. Five acres is about the maximum that can be expected from one of these machines in a single day. They cover only one row at a time and are subject to frequent breakage and other delays, which cause considerable loss of time. It is best to have a hand machine for every 15 acres of cotton to be treated by them.

Pole and Bag Dusting Worthless

Pole and bag dusting will not work in applying calcium arsenate. A considerable number of farmers, it is said, have been planning to use this method, good enough for leaf-worm poisoning with Paris green, in which the poison is simply placed in a cloth sack and shaken over the cotton plants. Calcium arsenate is of such a nature that it is practically impossible to secure a cloth through which it will dust properly. Furthermore, a very haphazard distribution of the poison is secured from this method, and as boll-weevil control depends upon the absolute thoroughness of dusting, it is of practically no benefit. The department urges against the waste of calcium arsenate by attempting to apply it by the pole and bag method for weevil control. Neither can the calcium arsenate be successfully applied as a liquid spray.

It is extremely desirable to conduct all poisoning operations when the plants are moist and when there is a minimum of wind. Generally speaking, these conditions are to be had only at night and in the early morning before the dew is dried from the plants. As far as possible, the poisoning should be conducted during this period. The power machines are equipped with lighting apparatus, which permits their operation during the entire night. Probably the best method of handling the hand gun will be to poison in the late evening and the early morning. In emergency, successful results may often be secured by application when the plants are dry and when there is considerable breeze, but more poison is required and the effect is greatly reduced.

Begin When Weevils Are Numerous

On the question of when to start poisoning, important as it is, only conditional advice can be given. The time for beginning should be determined by the weevil abundance in the field and not by any particular date or any stage of plant growth. No poisoning should be started before the plants begin squaring, and it is best to wait until the weevils become fairly abundant. Owing to the high natural shedding of the cotton plant, a certain amount of square puncturing by weevils can be permitted without any injury to the crop. The squares which drop from the plants because of the puncturing simply take the place of those that would have been shed in the absence of weevils. The most of the treatments so far have been based on what is termed the "percentage of infestation." The usual method of determining this is to go to the four corners and the center of the cotton field and to examine 200 squares at each point, noting the percentage that has been weevil punctured. Generally speaking, it is advisable to start poisoning when this percentage reaches about 10 per cent, and to continue often enough to keep the percentage below 25 or 30 per cent until late in the season, when it may be allowed to run much higher without any injury to the crop. The whole problem is simply to keep the weevils below the degree of abundance, which would result in injury to the cotton plants. Eradication can not be accomplished and should not be expected. After infestation becomes complete, the task of poisoning is very difficult and a poor risk.

If it is not possible to make definite counts for percentage of weevil injury, the best plan is to watch the field as closely as possible for fallen squares. It is time to start poisoning as soon as the yellow flared squares begin to show up in considerable numbers on the plants, and infested fallen squares are numerous on the ground.

Apply Poison Once a Week

When the field is of any considerable size it frequently happens that the weevils emerging in the spring concentrate, more or less, on the cotton adjoining woods and ditch banks where they hibernated during the preceding winter. It is often possible to confine the first one or two applications to this more heavily infested area along the edge of the field, and to skip the portions of the field more distant from the sources of infestation. Later in the season, as the weevils increase, it may be necessary to cover the entire field. In small fields it is undoubtedly best to poison the entire area without any attempt to economize by treating a limited portion of it.

The interval between applications will depend upon many conditions, but it is usually best to treat about once a week. Even more frequent treatments may be advisable in extreme cases. Where effective control has been secured early, intervals of longer than a week may be all right. The poison persists on the plants for a week or more, but it will usually be found that so much new growth is produced every week, affording unpoisoned tissue for the weevils, as to make it best to repeat the applications at weekly intervals regardless of weather conditions. The effect of rain is of minor importance. In fact, an occasional rain greatly increases the efficacy of the treatments. If the treatment has been applied under satisfactory conditions and stands 24 hours without a heavy rain, it will not require repeating in less than the usual interval. If a heavy, drenching rain falls within 24 hours after treatment, it is advisable to repeat immediately.

Calcium arsenate is effective not only against the boll weevil, but is undoubtedly as satisfactory against the leaf worm as Paris green or any other chemical which has been used thus far against that insect.

Protect Men and Horses

Calcium arsenate is not as dangerous as Paris green to the men and animals working in poisoned fields, but it should be remembered that a certain amount of danger is attendant upon the use of any arsenical, and reasonable precautions should be taken to protect both men and animals associated with it. Inhaling the dust should be avoided as far as possible. The field hands should be required to bathe as soon as they complete an application. In no circumstance should they be permitted to eat anything without at least washing their hands and faces thoroughly. No injury to stock has ever been reported from calcium arsenate in cotton fields, but it is probably best to use muzzles on the horses and mules working in poisoned fields.

A final precaution, as to the composition of the dust, is urged. Many farmers are accustomed to using lime or some other carrier with Paris green, and may be inclined, therefore, to do the same with calcium arsenate. But it is practically

impossible to effectively mix calcium arsenate with a carrier. The two chemicals will separate very rapidly on shaking. The result is that the farmer will be spraying out lime for a few minutes and then arsenate. He will thus leave patches through his fields on which there is no arsenate and where the weevils will develop without interruption. The whole success of the operation is endangered by mixing the chemical with lime or with other carriers.

There has been a certain amount of agitation in favor of using special mixtures, particularly of calcium arsenate and sulphur or some similar material. The department specialists say that this should be avoided for the present, as there is not a single thing to recommend any one of them. They do nothing but increase the cost of operation and work against success. Farmers are urged to avoid all chemicals except straight calcium arsenate, conforming to specifications given at the beginning of this article.

"GOSPEL OF THE FULL CAN" FOR COMMERCIAL CANNERS

The "gospel of the full can" is being preached this year to commercial canners by the United States Department of Agriculture through its Bureau of Chemistry, which enforces the Federal food and drugs act, commonly called the "pure food law."

Inspectors of the Bureau of Chemistry will visit personally as many of the canneries this season as they can reach. They advise that all cans of food should be packed as full as practicable without injury to quality. They also advise housewives and other purchasers to note the relative amounts of solids and liquids in the cans they buy and to give preference to the products of firms that seem to want to give a square deal to the home larder. Examinations of a large number of cans put up by different firms reveal a wide divergence in this particular.

The Bureau of Chemistry specialists have made investigations to determine exactly how much solid food—food from which the liquid has been drained—may be put up in the cans of different sizes in common use without in any way injuring the quality of the product. A certain amount of liquid, which varies with the different products, is necessary. The addition of more liquid than is necessary results in less food in the can, makes an inferior product, wastes shipping and storing space, and is unfair to the consumer. An honest pack promotes fair dealing, conserves containers, food, and shipping facilities, and aids the development of the canning industry.

The quantity of drained food, which is the solid food exclusive of liquid, that can be put more efficiently and economically in each of the varius sized cans in common use has been determined for peas, beans, cherries, pears, and peaches, and the canning industry has been advised of the results. The drained weights for other fruits and vegetables will be announced to the canning industry as they are determined.

In making a declaration of contents on cans of fruits and vegetables under the net weight requirement of the Federal food and drugs act, the total weight of the contents of the can, liquid included, should be declared.

Complete information regarding the application of the Federal food and drugs act to canned fruits and vegetables will be sent upon application to the United States Department of Agriculture, Washington, D. C.

By-Products Made from Citrus Culls; Department Finds Uses for Waste Fruit

Cull oranges, lemons, and grapefruit which were formerly wasted are now turned into many useful products developed by the Bureau of Chemistry, United States Department of Agriculture, which is conducting experimental work in the citrus by-products laboratory at Los Angeles, Calif.

The problem of how to utilize economically the cull and waste fruit became more acute each year with the development of the large orange and lemon groves of California and Florida. Fruit which is too small or too large, unsightly or misshapen, can not be sold profitably for food. Some fruit is not fit for shipment because of minor defects, such as small bruises, or punctures from thorns or gravel or rough boxes, since such defects become points of infection for bacterial and fungous growths which cause decay. The amount of waste fruit averages from year to year about 3 per cent of the total crop.

Laboratory Established in 1914

The citrus by-products laboratory was organized at Los Angeles, Calif., in 1914, to investigate the possibility of adapting to conditions in California, and improving existing methods for the utilization of waste lemons to develop new methods and to make, if possible, new products from the waste lemons, oranges, and grapefruit.

There were one or two small and struggling by-products companies in California when these investigations were begun. These concerns were making no appreciable inroad into the enormous supply of cull fruit available. Since the establishment of the experimental laboratory at Los Angeles, the by-products industry has developed rapidly. Now there are four stable concerns manufacturing lemon by-products. The plants of these concerns have a capacity of over 50,000 pounds of lemon oil, 500,000 pounds of citrate of lime, and over 1,500,000 pounds of citric acid. Twenty concerns are producing orange by-products to the extent of 6,000,000 pounds each year. These orange by-products include marmalade, marmalade stock, jellies, and candied peel.

Improved methods for the manufacture of orange vinegar have been developed by the experimental work. Methods for the production from cull grapefruit of candied peel and juices of excellent quality have been devised. The existing methods for the manufacture of citrate of lime and of citric acid have been improved and adapted to California conditions.

Prices for Culls Up 500 Per Cent

The benefits to the grower of fruit is shown by the increase in the price of cull fruits since the experimental work was begun. Less than five years ago cull lemons could be had in large quantities for $5 a ton, while to-day they bring $20 to $25 a ton, notwithstanding the fact that a larger quantity is now available. Sound cull oranges could be bought formerly in large quantities for $5 a ton. Now all cull oranges placed upon the market are snapped up quickly at from $20 to $30 a ton. Part of this increase in price is due no doubt to the general advance in the price of commodities of all kinds, but the general increase in prices will hardly account for advances of from 30 per cent to 50 per cent in cull fruit.

Information regarding the methods developed for the utilization of by-products from cull citrus fruits can be obtained by application to the citrus by-products laboratory, Bureau of Chemistry, Los Angeles, Calif., or to the United States Department of Agriculture, Washington, D. C.

Don't let careless expenditure make a sieve of your purse. Buy wisely and increase your money holdings by investing in W. S. S.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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OLIVE OIL FALSELY LABELED AS TO ITS ORIGIN; SEIZED

Shipments of olive oil labeled as having been produced in Italy, but which, in fact, was produced in Spain, have been seized in San Francisco, Calif., upon recommendation of Federal food inspectors, officials of the Bureau of Chemistry, United States Department of Agriculture, announce.

Italy has not yet removed the war embargo on the shipment of olive oil from that country, and, as a result, there is practically no Italian olive oil on the market in the United States now. Because of the scarcity of Italian olive oil it commands an unusually high price, and this condition has tempted unscrupulous dealers to endeavor to sell Spanish and other olive oils as Italian oils. Foods coming within the jurisdiction of the Federal Food and Drugs Act, which are misbranded as to country of production, are in violation of the law.

The seizure of these shipments under the Food and Drugs Act was not based upon consideration of whether or not there is any actual or supposed difference in grade or quality or flavor between the Italian and the Spanish oils, but was based solely upon the requirements of the Federal Food and Drugs Act, that false statements or misleading devices regarding country of production on labels of foods coming within its jurisdiction constitutes a misbranding. Both the better grades of Spanish olive oil and the better grades of Italian olive oil are well able to stand on their own merits, and neither needs to be sold under the name or brand of the other. Misbranding olive oil as to country of production is not only a violation of the Federal Food and Drugs Act, but is unfair to consumers and is demoralizing to the trade.

Federal inspectors have been instructed to give special attention to locating shipments of olive oil misbranded as to country of production.

GRAIN FIRE PREVENTION WILL BE CONTINUED

The work inaugurated by the United States Department of Agriculture in the prevention of grain-dust explosions and fires in mills and elevators as a war measure will not cease because the war is over. The United States Grain Corporation takes over the existing organization as of June 30, and the experts of the Bureau of Chemistry who have developed the work will be lent to the Grain Corporation by the Department of Agriculture.

It is a work that has resulted in the practical elimination of big fires from grain-dust explosion, which were of frequent occurrence before the department began its campaign of education and supervision. The Director of the United States Grain Corporation, in a letter to the department, said that he regards its continuance as "a necessity for the prevention of fire loss in the country," particularly for the large stocks of grain carried in storage by the Grain Corporation at its own risk—the wheat, mainly, for which the Government has guaranteed an initial basic price to the farmer of $2.26 a bushel.

The director asked that some arrangement be made by which his organization could bear the expense of carrying on the work. The department approved of the plan and the work is now under way.

SPEND YOUR VACATION IN THE NATIONAL FORESTS

Many attractive building spots in the national forests of the West are open for lease by the summer home enthusiast, announces the Forest Service of the United States Department of Agriculture, which says also that information regarding permits for summer home sites will be furnished gladly by Forest officers. Requests for information should be made to the nearest office of the Forest Service, or can be sent to headquarters in Washington, D. C.

The Forest Service is endeavoring to bring the wonderful vacation resources of the national forests in the East, as well as in the West, to the wider attention of the general public, and to induce many more hundreds of thousands each year to visit these natural playgrounds. Unexcelled opportunities for tramping, camping, motoring, and fishing are offered to visitors at no cost whatever for the privilege. There are a few restrictions on the use of the forests by the public—just enough to protect public property.

Go into the forests this year if you can, says the Forest Service, or else put such a trip on your vacation schedule for next year.

INSPECTING EGG SHIPMENTS TO ENFORCE FEDERAL LAW

Interstate shipments of eggs are being watched closely during the hot summer months by Federal food inspectors of the Department of Agriculture in order that appropriate action may be taken when such shipments violate the law.

Shipments containing eggs which have yolks stuck to the shell, moldy eggs, black spots, mixed rots, addled eggs, and any other eggs which are filthy, decomposed, or putrid, are in violation of the law.

Careful candling before shipment will enable dealers to eliminate the bad eggs. The elimination of the spoiled or partially spoiled eggs before shipment not only removes the hazard of violating Federal and State food laws, but it is economical in that it saves shipping charges on eggs likely to be rejected at place of receipt. A number of States have laws or regulations specifically requiring the candling of all eggs placed on sale.

Directions as to how to candle eggs as well as information regarding the best methods of packing, shipping, and storing eggs, will be sent upon request to the United States Department of Agriculture, Washington, D. C.

TB CERTIFICATE VALUABLE

"The certificate of an accredited herd I find of great value and assistance in a sale of animals from my herd, and from my experience I am certain that one who does not have his herd cleaned up, so far as tuberculosis is concerned, is making a blunder that will cost him in dollars and cents far in excess of any immediate loss he may sustain in having his herd cleaned up."—*M. D. Munn, St. Paul, Minn.*

In gardens where the available land is limited in extent, currants and gooseberries may well be planted among the tree fruits and left there permanently. The shade of the trees protects the fruits from sun scald, and the foliage is usually healthier in such locations than when grown where it is freely exposed to the sun.

SWISS NEED MORE ANIMALS IN ALL CLASSES BUT SHEEP

Live-Stock Situation Reported by Department Men in Europe

Cattle for Breeding Can Not Be Imported, but Meats and Animals for Slaughter Probably Will Be Brought In

LIVE-STOCK SITUATION ABROAD

This is the third in a series of articles describing observations on the live-stock situation in foreign countries by representatives of the United States Department of Agriculture.

Other countries will be treated in succeeding articles to be published in the Weekly News Letter.

"There is a general shortage of all classes of live stock, meats, and dairy products in Switzerland with the exception of sheep, which have increased in number since the beginning of the war." After thus briefly summing up recent observations on the live stock of that country, George A. Bell and Turner Wright, representing the United States Department of Agriculture in Europe, report numerous other facts of interest to American live-stock producers.

Cows Increase Nearly Fourfold in Price

The feed situation in Switzerland has been critical owing to the inability to obtain oil cake and to the fact that the Government required a larger amount of land to be plowed and planted to potato and other crops than in normal times. The cattle consequently are thinner in flesh and milk production has been greatly reduced. At the time of the observations of the department men in May of this year, good milch cows in Switzerland were worth from $500 to $800, nearly four times their price before the war.

Estimates on the number of cattle indicate a decrease in cows, but an increase in yearling heifers compared with the prewar period. Before the war Switzerland imported several thousand cattle from other European countries every year. This supply is now largely unavailable.

Importations of Breeding Stock Barred

Cattle for breeding purposes can not be imported into Switzerland, as the Government regulations will not permit such importations. Furthermore, the American investigators found no desire on the part of breeders and farmers to import breeding stock, as they believe they have the best breeds for their conditions. It will be the policy, however, to import animals for slaughter and meats in larger quantities than formerly until the Swiss herds are again restored. In the opinion of the department men, this should occur within three or four years.

Fewer Horses—More Oxen

From 1911 to 1918 horses in Switzerland declined in number about 10 per cent and good draft horses have been worth from $500 to $800. The country districts appear to be very short of horses, but the situation apparently causes little concern, since the Swiss people work a large number of cattle. Cows and bulls are used as draft animals, as well as oxen. Oxen increased from about 44,000 to 58,000 head between 1916 and 1918. Dogs also are used to a considerable extent for hauling light carts.

More Sheep and Goats

The Swiss census figures show an increase in sheep from 161,414 in 1911 to 229,469 in 1918, a gain of about 42 per cent. Before the war Switzerland imported large numbers of sheep annually, the number in 1913 being 113,257.

Goats in Switzerland last year numbered about 356,455, of which more than two-thirds were milch goats. Goats in Switzerland have shown relatively slight variations in numbers since 1911.

Swine Declined About One-Third

Swine decreased in number from 544,563 in 1916 to 365,798 in 1918, a drop of about 33 per cent. The decline included a large number of brood sows. While the decrease is not serious, inasmuch as the swine population can be restored in a few years, the situation calls for the importation of pork and pork products during the restoration period, when live hogs are being held back to replenish the herds. Before and during the war, Switzerland imported several thousand hogs for slaughter purposes annually. The animals came very largely from Italy and that trade still continues.

Shortage of Dairy Products

Compared with prewar times there has been a serious shortage of milk in Switzerland, due to the decrased number of cows in milk and also the decreased production per cow. The average yield is about 30 per cent below normal.

The scarcity of milk has produced also a shortage of butter and cheese. From a cheese-exporting country before the war, Switzerland has become a cheese-importing country. Negotiations were said to be under way with Denmark, Holland, and the United States for the purchase of butter and cheese. The department's representatives saw no butter served at any of the hotels or restaurants in which they ate.

Meat Consumption Restricted

There was also a general scarcity of all kinds of meats. Restrictions prohibiting the use of beef were in force from May 5 to May 19. There had been a beefless week a short time previously, and that had been followed by meatless days. The necessity for restricting the use of beef was attributed to the transfer of about 25,000 head of cattle to France in connection with an economic agreement whereby Switzerland obtains certain articles from France. Prices of live cattle and hogs were about double the market quotations before the war.

The policy of the Swiss Government probably will be to encourage the importation of meats and fats until the herds have been reestablished. But inasmuch as refrigerating facilities in Switzerland are limited, it is likely that a good many live cattle for slaughter will be purchased, if obtainable.

American pork observed on sale in Switzerland was of a very poor quality. The department men consider it essential that some effort be made to improve the quality of the meat offered and to put it on the market in a more attractive form if a substantial export trade is to be established.

Some horse meat is consumed, but only by the poorer classes, the demand being occasioned by the great shortage of other meats.

Poultry Scarce, Eggs More So

Poultry of all kinds were observed to be very scarce and no eggs were seen at any of the markets. It was explained that even in normal years Switzerland has comparatively few chickens, owing to the fact that little grain suitable for chickens is grown and that during the war all grain produced was needed for human consumption. On a Saturday market day in Berne the observers counted a total of 7 chickens and saw no turkeys, ducks, or geese. During the time they were in the country they observed scarcely 100 live fowls.

The conditions described are considered noteworthy as showing the economic effect of war on the live stock of a neutral nation. The shortage of meat, dairy, and poultry products in Switzerland is due basically to an inadequate quantity of feed. This fact and conditions in other countries lead the United States Department of Agriculture to believe that attention by American stockmen to raising feed and preparing animal rations skillfully is to be a dominant factor in economical production and will be necessary in order to hold their share in world trade.

NEW WORK PROVIDED FOR IN AGRICULTURAL FUNDS FOR 1920

(Continued from page one.)

and potash salts. Before that time these products had gone to waste and the United States imported all of both products that it consumed. Not only was there a dead loss but the waste material had become a source of serious pollution to rivers and other streams.

The plants built to handle this business during the war, when prices were very high, must install the most economical methods for extracting the by-products of the wool-scouring wastes if they are to continue in operation at the lower prices expected when normal conditions are restored. These economical methods are to be worked out by the Department of Agriculture under the new appropriation of $9,000.

There has been lost every year approximately 50,000,000 pounds of recoverable wool grease. At before-the-war prices this was worth $1,500,000. At present prices it is worth about $8,000,000. There was lost every year, also, about 2,500,000 pounds of potassium carbonate, worth at before-the-war prices $750,000, and at present prices about $6,250,000. Besides these main items, other materials of unknown value are recoverable in wool scourings, and by far the greater part of this is wasted and seriously pollutes the streams. The work of discovering methods of utilization is well under way and promises to yield methods which will make it possible to utilize the wool-scouring wastes profitably to the country.

To Safeguard Dye Industry

A substantial increase is made in the appropriation for dye investigations. This year's appropriation is $100,000, as against $70,000 last year. This increase was made so that the Bureau of Chemistry can complete the erection and equipment of the dye manufacturing plant at Arlington, Va. The dye investigations have resulted in the development of a number of important processes for the manufacture of coal-tar dyes. Fifteen patents have been granted on new processes, and processes have been developed for the manufacture of intermediates, used in the making of dyes. Some of these processes are already in use on a commercial scale in the production of dyes and intermediates. Other processes which have been worked out on a small scale are being tried in a small commercial way and later will be developed on a large scale. Efforts will be made this year to develop new and cheaper processes.

Among the new items in the act is one appropriating $100,000 for agricultural exhibits at State and inter-State fairs. The material for such exhibits is to be limited to that showing the work of the Department of Agriculture and no part of the appropriation can be used to show the work of other departments of the Government. A part of the total appropriation amounting to $25,000 is specifically set aside by Congress for the preparation and installation of an exhibit at the National Dairy Show to be held in Chicago in October of this year.

The act carries an item of $35,000 to enable the Bureau of Markets to complete the work of the domestic wool section of the War Industries Board, and to enforce the regulations for handling the wool clip of 1918 as established by the wool division of that board. This work was transferred to the Bureau of Markets by an Executive order on December 31, 1918.

An item of $12,000 provides for the establishment of a market news service on peanuts, information to be gathered by wire, letter, or otherwise, and distributed to growers and others interested concerning the prices, movement, and supplies of peanuts in the United States.

The markets news services on dairy products and on hay and grain, feeds and seeds, which were established as emergency measures during the war, have been continued under appropriations of $80,600 in the case of dairy products, and $50,000 for the news service on grain, hay, feeds, and seeds.

Potato Weevil Being Pushed Back

There are three new items in the appropriation for the Bureau of Entomology. One, for $250,000, is for the control of the European corn borer, now known to exist in Massachusetts and New York. This pest has spread very rapidly within the past few months, and the task of elimination or control has become correspondingly more serious. An effort now is being made to hold it as closely as possible to the present infested area and to prevent its spread to the important corn-growing sections of the country. The Bureau of Entomology is preparing to throw into the field the largest force possible to enforce the existing quarantine and to enlarge the survey work. A more intensive campaign will be begun in the fall to prevent the natural spread of the insect. While no appropriation has ever before been made for this purpose, the work itself is not new. It has been carried on for the past year with money from the stimulating agriculture fund.

An appropriation of $134,960 is made for investigations of insects affecting truck crops, $70,000 of which will be used largely for the control of the sweet potato weevil, a work that was begun with money from the stimulating agriculture fund. It has been found that the sweet potato weevil has spread much more widely than was thought at the beginning. It has been found in the States of Mississippi, Alabama, and Georgia, where it was not previously suspected of having a foothold. The spread in Louisiana and Texas was rapidly covering the entire sweet potato area of these States. The other State affected is Florida.

Situation Under Control

The control work is well in hand, following surveys and extensive inspections. Further surveys will be made in the States adjoining those now known to be affected. Five laboratories have been established for the purpose of working out control measures and possible means of eradication. In Baker County, Fla., and Charlton County, Ga., known as the Baker-Charlton project, experiments are being made for the control of the weevil without interfering with the growth of the crop. The means employed are clean culture, destruction of infested material, the use of weevil-free seed, and the planting of sweet potatoes each year as far as possible from the plat in which they were grown the year before. Continual inspections will be made to see that these measures are followed thoroughly. Experiments will also be made with heat treatment, disinfection with bisulphide of carbon, deep planting, eradication of wild host plants and insecticide sprays. The present outlook indicates the early eradication of the weevil from the Baker-Charlton project, and from the entire State of Alabama. As soon as satisfactory cooperation is arranged in Louisiana and Texas, similar campaigns will result in pushing back the weevil there. In two or three years it is hoped that the weevil will have been eliminated from three of the infested States.

The third new appropriation for the Bureau of Entomology is one of $5,000 for developing control measures against the camphor thrip. This thrip is newly reported from Florida, where it is said to be inflicting great injury both in camphor groves and nurseries. It is probably also present in Alabama. This pest is so new in the United States that nothing definite can be stated at this time as to the methods that will be taken by the control campaign.

Weather Work in Aeronautics

A special appropriation of $100,000 was made last year to enable the Weather Bureau to carry on meteorological work

in aid of aviation, and it is continued this year as a regular appropriation. Much was done along this line while the war was in progress and since the signing of the armistice, and it is being steadily developed. It brings the Department of Agriculture in close relation with the Army and Navy in the development of military and naval aeronautics. A notable illustration of the work done by the Weather Bureau in aid of aviation was the assistance given to the American Navy airplanes that made the first flight across the Atlantic Ocean, and to the British dirigible that later made the crossing both from England to America and from America back to England. Information furnished by the Weather Bureau representatives on the ground enabled the dirigible to start on the return trip in time to avoid a severe storm that would probably have destroyed the machine had it remained over this continent.

More Forest-Fire Funds

The Forest Service is allowed an increase of $225,668 for additional fire protection in national forests. The urgent need of this increase has been made apparent by the serious fire conditions that existed in the Northwest in 1918, and which have been repeated this season. By means of this appropriation, it will be possible for the Forest Service greatly to increase its fire protection force in that region. The payment of rewards is authorized "under regulations by the Secretary of Agriculture for information leading to the arrest and conviction of violators of the laws and regulations regarding forest fires in or near national forests or for the unlawful taking of or injury to Government property." It is believed that this provision will be of material assistance to forest officers in getting cooperation of the people in running down individuals responsible for incendiary fires or other trespass of regulations.

For Flag-Smut Control

Several new projects are provided for in the Bureau of Plant Industry. An appropriation of $50,000 was made to enable the Secretary of Agriculture to meet the emergency caused by the existence in the United States of flag smut of wheat, take-all, and similar diseases of wheat and other cereals infesting soil and seed. This fund will enable the department to cooperate with the authorities in different States to prevent the spread of the Australian flag smut and take-all diseases, discovered for the first time in the United States this season in western Illinois. Soon afterwards a small area in northwestern Indiana was found infested with take-all. The State officials of Indiana and of Illinois have quarantined the infected areas of their respective States and, in cooperation with representatives of the Department of Agriculture, are disinfecting all wheat thrashed from infected fields as the wheat comes from the thrasher. In addition, the chaff and straw of the infected area are burned and the thrashing machine is thoroughly cleaned and disinfected at the completion of the thrashing. In addition to these activities, the Bureau of Plant Industry has undertaken a general examination of all wheat regions throughout the United States to determine whether any outbreaks of either take-all or flag smut have occurred elsewhere. Up to the present no infected areas have been found aside from those noted.

To Develop Nut Industry

An appropriation of $20,000 has been made for nut improvement work, especially upon pecans, almonds, Persian walnuts, black walnuts, hickory nuts, etc. The nut industry is relatively new in the United States and probably no tree industry of equal importance presents more difficult problems to the grower. For some years the department has been giving special attention to the relative value and adaptability of different varieties of pecans to the several regions where the industry is being established. Similar types of investigations will be extended to all other classes of nuts grown in commercial orchards in the areas of the United States to which they are adapted. The English walnut and almond present many of the same cultural problems as the pecan and the black walnut. The two latter species, although native, have been under cultivation a comparatively short period of time and are, perhaps, less well understood than the English walnut and the almond. Furthermore, the English walnut and the almond under American conditions present many problems which can not be solved by the experience of European cultivators of these nuts.

Among the first activities undertaken will be a survey of the territory to which such species as the black walnut, the shagbark, shellbark and pignut hickories, the butternut, hazelnut, and filbert are indigenous for the purpose of producing superior varieties for propagation. The first will be a survey of a portion of the walnut, almond, and filbert growing districts of the Pacific coast to determine the varieties best suited to the respective districts and the most economical methods for harvesting, marketing, and utilizing the crop.

For investigating the new grape industries and methods of utilizing grapes heretofore used for the production of alcoholic beverages, $20,000 was appropriated.

For Plant-Detention Camp

For the purchase of a tract, not exceeding 50 acres, near Washington and the erection of necessary buildings and equipment for the establishment of a plant detention and inspection station, $50,000 is appropriated. With growing interest in restrictive measures as a means of protecting valuable crop plants against insects and other enemies, and especially in view of the recent Plant Quarantine Order No. 37, excluding from the United States most living plants from foreign countries, there has developed a pressing need for better facilities for handling the plant inspection and plant quarantine work. Through cooperation with the Federal Horticultural Board, tentative plans have already been developed for the Office of Foreign Seed and Plant Introduction to act as a clearing agency in the handling of all new plant material that the board under Quarantine Order No. 37 may permit to come in and be grown in this country by commercial agencies for the purpose of building up the horticultural industries which heretofore have been conducted abroad. New crops originating in many parts of the world must be permitted to come in under careful restrictions in order that they may form the basis for new industries. The burden of this work will fall largely upon the plant introduction, inspection, and detention station.

In connection with all this work, it will be necessary for the entomologists and pathologists of the Federal Horticultural Board to develop many new lines of treatment for such plants as nursery stock, bulbs, and roots in bulk. Little work has been done along this line and little is known regarding the immediate and after effects of the treatments of stock packed for shipment. Obviously the department grounds are unsuited for work such as is here outlined. There is not sufficient room, and the work is handicapped by the proximity of other lines of plant activities that might be jeopardized.

Better Seed of Potatoes

An appropriation of $15,000 has been made available for continuing the work inaugurated under the act for stimulating agriculture on the improvement of Irish potato seed stocks. At the urgent request of potato growers and dealers in potatoes, the department undertook to cooperate with those States where potato growing is one of the major industries, especially with a view to aid in bringing about the production and general use of better quality of Irish seed potatoes.

These activities comprised both the immediate location of existing seed supplies of good varieties and breeding and selection work to improve and maintain pure strains of the more important commercially grown varieties. Cooperative agreements covering these activities were entered into with the States of Oregon, Washington, Iowa, Minnesota, Wisconsin, Maine, Idaho, and Colorado, and the work is progressing satisfactorily.

There is also urgent need for the production of a sufficiently large second crop of potatoes in the South to supply the normal consuming demands in that region. If this need were met by southern producers, it would obviate the necessity of long-distance shipments of potatoes from the North and West during the winter season, thereby releasing for more urgent purposes a large number of freight cars. The present practices of growers of second-crop seed in the South are responsible, in large measure, for the inadequacy of the crop produced. It is believed that the work proposed, conducted in cooperation with State experiment stations will serve to demonstrate the possibility of materially increasing the production of second-crop potatoes.

The act includes a provision whereby employees of the Department of Agriculture assigned to permanent duty in the Virgin Islands are entitled to the same privileges as to leave of absence as are conferred upon employees assigned to Alaska, Hawaii, Porto Rico, and Guam. That is, they may postpone the taking of any or all of their annual leave and, subject to the interest of the public service and the discretion of the Secretary of Agriculture, be allowed to take at one time unused annual leave which may have accumulated within not to exceed four years.

The Bureau of Biological Survey is provided with $5,000 for the improvement of the game preserves in Sully Hill National Park, N. Dak. This sum is to be used in the construction of buildings, sheds, roads, fences, etc., necessary for the protection of game and the use of visitors. While appropriations have been made in previous years for the improvement of the game preserves in Sully Hill National Park, no money was appropriated for this purpose last year.

May Supply Surplus Bison

As a surplus of male animals has accumulated in the herds of American bison under the control of the Department of Agriculture, the Secretary of Agriculture is authorized to supply to any municipality or public institution not more than one American bison from any surplus which may exist in any herd under the control of the department. In order to aid in the propogation of the species the Secretary of Agriculture is also authorized to lend or exchange animals with other owners of American bison.

The inspection of equine meat in the manner provided for in the meat-inspection act is authorized, and $100,000 is appropriated for this purpose. Hereafter the transportation of horse meat in interstate commerce or import or export trade is unlawful unless each container is plainly labeled "horse meat" or "horse meat product," as the case may be.

As it is necessary for meat inspectors employed by the Bureau of Animal Industry to remain at work after the usual working hours in establishments where they are inspecting meat, the Secretary of Agriculture is authorized to pay such employees for all overtime work at such establishments, and to accept from such establishments sums to reimburse him for the payment of overtime work.

TB Funds Increased

While the investigation of tuberculosis of animals, its prevention and control, is not a new undertaking for the Department of Agriculture, it has been shown that this work is so important that the appropriation to carry it on during the fiscal year 1920 was greatly increased. A total of $1,500,000 was appropriated for this purpose, of which $500,000 is to be used for administrative and operative expenses, and $1,000,000 for the payment of indemnities.

Of the $327,680 appropriated to meet the expenses for investigations and experiments in animal husbandry, $20,000 is to be used in investigating the production of salt pork in the Southern States—a problem heretofore not undertaken by the department because of lack of funds.

School Girl Enters Show Ring with Rhode Island Red Fowls

Dorothy Yount of Lincoln County, N. C., is the proprietor of the best "one-ring circus" ever owned and operated in the Tarheel State, according to her own statement. Instead of using clowns, trained ponies, troops of acrobats, elephants, snake charmers, and wild western cowboys to disport themselves and amuse the spectators, Dorothy works with Rhode Island Red hens, and her fowls cater to the plaudits of the State at large.

Two years ago the poultry club agent of North Carolina, a representative of the United States Department of Agriculture, examined Dorothy's flock. He admired the birds and suggested that she exhibit a few at the State fair that season, and he promised to return in the fall and assist in selecting her exhibition fowl. That is how Dorothy happened to go into the "circus business." At the first show she attended she was awarded first and second honors on Rhode Island Red cockerel, and first and third prizes on a Rhode Island Red pullet, and furthermore, sold all her winners at high prices before she left the show. Later in the winter, at Wilson, N. C., she exhibited and captured other honors. At this exhibition the judges pronounced her cockerels fit to show in any competition.

More Prizes Won

Then Dorothy assembled a flock of 40 females and 3 males, and in the spring of 1918 began keeping records on her birds. That year she sold $178 worth of foundation stock, some of the cockerels selling as high as $15 apiece, while the pullets brought as much as $12.50 each. Dorothy culled out and marketed $59.22 worth of unsatisfactory fowl from the flock and also disposed of $72.50 worth of eggs for hatching purposes, as well as $32.30 worth of market eggs. During this period her feed bill totaled $139, which left her a net return of $209.02 from her 40 hens.

Dorothy competed last season in all the poultry shows of North Carolina, and captured so many prizes that now her fame as an exhibitor is wide. Furthermore, she has continued her successful sales. For example, she shipped 8 extra cockerels to one of the shows and sold them for $5 apiece as well as disposing of one cock bird for $12, having to refuse many more offers because she had no more available stock.

Raised According to Rules

The fact which pleases Dorothy most of all is that her birds have been raised according to instructions given to the juvenile poultry club members, without pampering and special breeding for show-ring characteristics. Her fowl are designed and developed both for utility and show-ring excellence, and they have shown well in both departments.

Beginning June 1, 1919, Dorothy's flock amounted to 46 hens and pullets, and 6 males, the extra males being retained for exhibition purposes. She set enough eggs last spring to hatch 204 chickens. She used an incubator for hatching purposes and brooded the chicks with hens.

Red or white currant bushes which are 1 year old should have the weaker shoots removed, leaving 6 to 8 strong shoots, according to the vigor of the bush. At the end of the next year four or five 2-year-old shoots and three or four 1-year-old shoots should be left, and at the end of the third year about three shoots each of 3-year-old, 2-year-old, and 1-year-old wood.

More Milk, More Beef, More Cattle Value in County Reclaimed from the Fever Tick

What the eradication of the cattle fever tick has done for one community, and what it will do for other communities that drive out this insect enemy of the live-stock industry, is shown by four typical examples from Harris County, Tex. This county, which contains the metropolitan city of Houston, resolved in 1917, in an election, to drive out the tick by the use of the dipping vat, and it did the job so thoroughly in the dipping season of 1918 that the Federal quarantine was removed from the county on December 1 of that year.

A thousand head of range cattle are owned by the firm of Bertrand & Daniels, whose pastures are near Fairbanks, Harris County. Every animal in the herd was dipped every two weeks during the season of 1918, and not one was lost through dipping. Despite the difficulty of gathering a thousand head at stated intervals it was done regularly, and the entire herd was put through the dipping vat in one day. Not a tick had appeared on the cattle up to July in 1919. The cattle are fatter and healthier and more valuable, and losses from tick fever have ceased.

First Public Vat on Dairy Farm

The first demonstration public dipping vat in Harris County was built at Oaklawn Farm, which operates a dairy of 150 cows. Sid Westheimer, owner of the farm, lost eight valuable animals from tick fever, and he became convinced that either all the ticks or all the cows would have to go. He decided in favor of the cows and against the ticks, and volunteered to pay half the cost of constructing a vat, which was to be open to the public. The cows were dipped regularly in 1917 and 1918, and no tick has been seen this year on the farm. Mr. Westheimer says that his cows have shown an increase of at least a quart a day in milk production since the ticks were dipped out. Blood is required to make milk, he says, but blood will not make milk if the ticks get it.

The 60 dairy cows owned by A. C. Raasch, of Fairbanks, have shown an improvement of one-third in condition and an increase of one-third in milk production since they were freed from ticks, according to the statement of their owner. Mr. Raasch says that when ticks were allowed to overrun the county he lost six or seven cows every year from tick fever. He values his cattle at $25 a head more than they were worth when ticks held sway. He finds that his bill for winter feeding is much less because not so much feed is required—when cattle are not weakened by parasites they require less feed to keep them in condition.

The milk yield in the 100-cow dairy of Lewis Abbott, at Dyersdale, has shown an increase estimated by Mr. Abbott at 15 per cent since the ticks were driven out. A complication in the system of public dipping prevented dipping materials being sent to the Dyersdale community this summer, so Mr. Abbott bought his own "tick medicine." He would rather meet the expense on his own account than to give the ticks a new start in his herd.

Many More Instances

These instances of the benefits from tick eradication in Harris County are typical. Scores, and even hundreds, of other examples might be cited. For instance, 15 Guernseys that were placed on Santa Anna Farm, near Houston, as the foundation for a pure-bred herd, began to die from tick fever. The installation of a dipping vat saved all that could be saved—including a fine bull that since has won high awards at the Texas State Fair at Dallas. Statements declaring that they had dipped their cattle in accordance with the regulations of the Bureau of Animal Industry of the United States Department of Agriculture, and that the cattle appeared better than ever before, were signed by E. N. Haddon and 191 other farmers and stock raisers of Harris County. The statement that 100 pounds of extra flesh had been put on by each head of their cattle was made by 71 of these men; and the statement that several pounds of flesh had been added was made by 23 of them.

WHAT A CERTIFICATE MEANS

"I am in receipt of a certificate from the United States Department of Agriculture to the effect that they have found my herd of 36 pure-bred Jersey cows free from tuberculosis, and that the herd has been placed upon the accredited list.

"I consider this a great asset to me, and upon showing the certificate to the restaurant keeper who purchases all my milk he was so delighted with it that he requested permission to have it framed and hung upon the wall in the restaurant.

"I find that the general public is becoming more and more interested in the effort to eradicate tuberculosis and more appreciative of the work that is being done. It seems also that the farmers, especially in Maine, are taking more interest in the matter, and are beginning to appreciate the effort which the United States Bureau of Animal Industry and the State of Maine are putting forth in this direction."—*David E. Moulton, Portland, Me.*

BIG INITIAL LOSS, BUT GREAT GAIN

"In December, 1909, I discovered tuberculosis in my herd. I at once notified the live-stock sanitary board at St. Paul and requested them to send their veterinarian to test my cattle. They did so, and found 22 reactors in my herd of 80 head.

"Some of my neighbors made light of the matter. To satisfy myself I went with my cattle to South St. Paul and saw them slaughtered, and was shown lesions in every single carcass.

"The next year I called for the second test and found infected one cow that was tested the year previous and a heifer that was too young to be tested the first year. I followed the instructions of the sanitary board in disinfecting my barns after each test.

"I have had my cattle tested every year since and have not had a reactor since the first two tests. This year, 1919, I called for the Federal inspector to test my herd, and he also found them free from tuberculosis.

"I certainly am in favor of eradication of tuberculosis in all cattle, both registered and grades."—*M. C. Willford, breeder of Angus cattle, Canton, Minn.*

A place with good air drainage is preferred for gooseberries. In low, damp places mildew attacks both fruit and foliage more severely than on higher sites where the air circulation is better. Currants, however, are seldom severely attacked by mildew. Therefore, when the site is a sloping one, currants may be planted on the lower parts and gooseberries above. As both fruits blossom very early in the spring, neither should be planted in low pockets where late spring frosts may kill the flowers.

Gooseberries ordinarily are propagated by mound layers. The plant from which layers are to be procured should be cut back heavily before it begins to grow in the spring. By July it will have sent out numerous vigorous shoots. It should then be mounded with earth half way to the tips of the shoots. By autumn the shoots will have rooted. Those with strong roots may then be cut off and set in the nursery, to be grown for one or two years before planting in the field. If the roots are not well developed, it will be better to leave the shoots attached to the parent plant for a second year.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Light on the Road Ahead.

You have been motoring—or wagoning, or walking, or otherwise proceeding—along a fairly good road with nothing to indicate that it would not continue fairly good, and then you have run suddenly into an impassable place, mired down, and had 17 assorted samples of hades getting out. Everybody else has had the same experience—road maps to the contrary notwithstanding. The road map is a good thing, but it shows what the road used to be, not necessarily as it is. Roads change—mighty rapidly, sometimes. A downpour of rain and the road is washed out; a night of snow, and it is cluttered up beyond passing—though it may have been perfect yesterday. If there were some way of knowing what the road is to-day, of reading it on a card or map like you do the weather, for instance—

Well, that is one of the new things that the United States Department of Agriculture is undertaking to arrange for you. Henceforth, the weather bulletins will show road conditions. The work was begun by the Weather Bureau as an aid to winning the war. At first the service applied merely to motor transportation in some Eastern States. Then the demand for it became pretty general and very insistent. So, without any special appropriation to take care of it, the Weather Bureau is undertaking in certain States to add daily news of road conditions to its other services. The work can not be perfected all at once. Dependence will have to be placed, for a while, on free information from localities. But the service will be given to the fullest extent possible this year.

Barberry Fight to Go On.

There will be no cessation in the vigorous campaign of the United States Department of Agriculture, in cooperation with the States, against the barberry until all of the obnoxious bushes are dug up. Recent information from Minnesota, Iowa, Wisconsin, and other sections where the barberry has existed for long periods is to the effect that it is growing wild at a number of points. All the field men of the United States Department of Agriculture engaged in the campaign recently met at Ames, Iowa. Reports were made on the work of locating and eradicating barberry bushes from all sections of the 13 States infested, which include Ohio, Minnesota, Wisconsin, Iowa, Michigan, Nebraska, South Dakota, North Dakota, Illinois, Wyoming, Indiana, Colorado, and Montana.

Club Youngsters Excel in School.

A boy or girl who belongs to one of the clubs organized by the Department of Agriculture and the State colleges gets better marks in school than one who doesn't. This is the testimony of the county superintendents in the counties in which clubs have been organized as brought out by a recent inquiry in the Southern States. In Monongalia County, W. Va., for two years a complete record has been kept of 53 club members and of the same number of pupils of the same grade and age and from the same schools. The records show that the club members in their monthly examinations have averaged 15 per cent above those who do not belong to a club, 12 per cent in attention, and 23 per cent in attendance at high school after completing the eighth grade. At the annual spelling contest in the county all the winners were club boys and girls.

A four-year record in Comanche County, Tex., shows the scholarship of the club boys and girls to be 11 per cent above those who do not belong to a club. Of the 4,000 boys and girls in rural schools in the county, not one expelled or suspended was a club member. The superintendents agree that club members are more active, have more inspiration to do better work and possess the desire to search for new things. Very few club members stop school in the lower grades, and those not of their own choice.

Fewer Bulls But Better Ones.

How a bull association transformed a community with 18 nondescript bulls into a community with one-third that number of good pure-bred sires from high producing ancestors is explained by an extension worker of the Dairy Division, United States Department of Agriculture.

When a bull association was started in a community in Webster County, Mo., the best bull in the community became a standard for the bulls selected by the bull association. All of the new bulls, then, are as good or better than the best bull that was in the community before.

Before the bull association was organized the 18 bulls in the community were valued at $1,355, an average of $75.28. One or two of these bulls were pure breds and the rest were largely grades and scrubs of mixed dairy and beef breeding. After the association was formed these nondescripts were disposed of and six pure-bred dairy bulls were purchased at a total cost of $1,657, an average of $276 an animal.

The more efficient utilization of the association bulls resulting from organization of the association made it possible for the six pure-bred bulls to take the place of the 18 bulls formerly maintained. The reduction in the number of bulls also resulted in a corresponding reduction in the cost of maintenance to be charged to each cow.

The improvement in the quality of the bulls seemed to have a marked effect on the class of cows kept in the herds, and in less than one year after the association was formed the number of pure-bred females in the community increased from two in July, 1918, to 42 the following June. The large amount of good which resulted from the transformation of a scrub-bull community into a community of good pure-bred sires is an agricultural improvement hard to parallel, especially when it is considered that this change was made with an expenditure of only $10 more per farmer, and that the use of good sires will result in a lasting improvement to dairy cattle of the community.

Buffalo Has Cooked-Foods Center.

Bridget can depart at a minute's notice, and her mistress, if she lives in Buffalo, will experience no sinking of the heart, for she can order meals for her family from the cooked-food center, and the family machinery will run as if there had been no interruption. The Buffalo food center is under the supervision of the home-demonstration agent of the United States Department of Agriculture and the State College of Agriculture, and the Buffalo Home Bureau. Complete meals are sent out from it to be served in the individual homes. Its patrons have the family life that centers around the home dining-room table with the saving of fuel, labor, and food costs which come through large scale operations.

The work in Buffalo started in a small way, but a few weeks' experience showed

that the equipment was inadequate to handle the business that immediately developed. The cooking of meals was discontinued until alterations could be made and on June 17 the center was ready to handle business on a large scale. Two hundred people came the first day, and the regular orders for dinners and luncheons continue to grow. The menus are prepared under the supervision of the home-demonstration agent so that they represent balanced meals. These menus are distributed to the patrons one week in advance, and the orders are returned to the kitchen several days in advance of the delivery of the meals. In this way materials may be ordered when they can be secured at the lowest possible figure.

Special features of the service include the Thursday-night dinner, which is in great demand by those fortunate housekeepers who have maids to whom they give a half holiday Thursdays. Many housekeepers also order the Sunday dinner, because it gives them a day free from preparing meals. Food for the sick is a feature of the work in which the physicians are greatly interested. Special diets for special diseases are recommended by the home-demonstration agent and this food can be procured at the cooked-food center on special orders.

To Help Raspberry Growers.

Raspberry growers, particularly in the lake region of the Middle West, have encountered difficulties resulting from diseases not thoroughly understood that have seemed to threaten the existence of the industry, unless effective methods of control could be worked out. The United States Department of Agriculture has been investigating the situation for some time past and is about to begin more intensive studies. Specialists will spend practically the entire season in the field, thoroughly investigating the diseases to determine the causes and habits of growth and to devise control measures by spraying and otherwise.

Clubs Increase Farm Contentment.

Ten to 50 per cent of farm boys who were dissatisfied are now content to stay on the farm, it is estimated by the county agents in the South, as a result of the club work which is supervised by the Department of Agriculture and the State colleges. Boys who belong to one of the agricultural clubs learn proper farming methods and have social good times. When once they become convinced that they can make as much or more money in the country as in town and have as good a time, the clerical position in the city loses its glamour.

The boy who has had little or no money of his own is enabled through club work to own personal property and to have a bank account. In Oklahoma 4,736 club boys own $6,963 of thrift stamps, 7,454 boys own $92,255 of baby bonds, 1,616 boys own $13,600 of Liberty bonds. The 13,806 Oklahoma club boys own war securities amounting to $112,818. Fifteen thousand boy club members in the State own bank accounts, club property, and war securities, totaling in value $247,186.06, or $16 each. Many of the fathers of these boys have never had a bank account.

Investigate Prevention of Food Spoilage.

With the cost of living as high as it is, permitting good food to spoil in transit and in the hands of dealers is more noticeably wasteful than ever before. Yet a great deal of food is constantly lost in that way. In order to prevent as much of it as possible, the United States Department of Agriculture has made extensive laboratory studies of the bacteria that produce spoilage, have developed methods of control through sanitation, sterilization, dehydration, and refrigeration and is putting them in operation on a commercial scale. The work already done includes methods of candling, cooling, packing, and shipping eggs; the precooling of plants, together with model refrigerator cars, and methods of killing, dressing, packing, and shipping, to permit small shippers of dressed chickens and turkeys to secure the minimum of spoilage; methods of preventing spoilage in commercially canned tomatoes, catsup, tomato pulp, and similar articles; improved methods of handling, packing, and shipping shrimp and sardines and best methods of shipping fresh fish to inland cities. Investigations are under way for improvement of methods in canning salmon. Experiments are being conducted, also, with a view to developing methods of drying fruits and vegetables that will preserve the delicate flavor of the original products and to establish a permanent drying industry in the United States.

Entry Blanks for Milk Show.

Entry blanks and score cards for the milk and cream contest to be supervised by the Dairy Division of the United States Department of Agriculture, and which is to be held in connection with the National Dairy Show, are being sent to prospective exhibitors. The object of the milk and cream contest is to give recognition to high quality dairy products, and it will put a premium on good care, handling, and equipment in the dairy barn, creamery, and milk-distributing plant. The examination of milk and cream in the national contest will begin September 29, in order that the work may be completed and the results reported at a sufficiently early time. It has been decided that the entries must be produced or prepared on September 22, and shipped immediately. George B. Taylor, of the Dairy Division, will be in Chicago and will receive and care for all samples on arrival. There will be at least eight classes of milk and cream entries. There will be a raw market milk class, in which dealers should encourage their best producers to compete. Classes of pasteurized milk and cream are open to milk dealers. Gold and silver medals and diplomas will be given as prizes in all classes.

Forests Call Vacationists.

Millions of people in the Eastern States, when they think of the national forests, think of the far West. They want to go to the forests some day, but think that such a visit would mean a journey requiring months of preparation. They are mistaken. There are two national forests in the East that have wonderful opportunities for tramping, camping, or motoring, and they are so situated that one of them is not much more than a day's railroad journey from any point east of the Mississippi.

The White Mountain National Forest in northern New Hampshire appeals particularly to the people of New England and other Northeastern States, but despite the millions who live in that region it entertains much fewer visitors each year than it deserves. Vacationists can find recreation there to suit any outdoor taste and any pocketbook. There are hotels and motoring roads for those who like them, and there are trails and abundant camping places for the man who wants to go through with a pack on his back. A tramper or camper can spend a week or more in the forests with little more money than he would spend at home.

The same statements apply to the Appalachian National Forest in North Carolina and Tennessee, although vacation resources have not been so greatly developed there as in the White Mountains.

Attractive building spots may be leased by the summer home enthusiast on any of the national forests.

The Forest Service of the United States Department of Agriculture is trying to bring the unexcelled vacation resources of the national forests to the attention of the many people who do not appreciate what they offer. Information on the forests will be gladly furnished by any

office of the Forest Service or by its headquarters in Washington, D. C.

Go into the forests this year if you can, says the Forest Service, or else put such a trip on your vacation schedule next year.

Legumes a Substitute for Grain.

That profits may sometimes be increased by the substitution of legumes for a large part of the concentrates in the dairy ration, is brought out by cow-testing association records obtained by the Dairy Division of the United States Department of Agriculture. The records from 6 associations where alfalfa formed a large part of the dairy ration was compared with the records from 8 associations where legumes were fed sparingly with the following results:

In the alfalfa district the cost of grain was 16 per cent of the total feed cost, and in the other district the cost of grain was 41 per cent of the total feed cost. The average milk yield of the alfalfa-fed cows was 6,805 pounds and the average yield of butter fat was 281 pounds. In the other district the average milk yield was 5,234 pounds and the average yield of butterfat was 238 pounds. For the alfalfa-fed cows the average income over cost of feed was $73 and for the grain-fed cows the average income over cost of feed was $37.

The alfalfa-fed cows may have been better cows and the climate may have been better adapted to dairying, but as both districts are favorably known for their dairy products it may be assumed that the cows were of good quality and well cared for in both districts. It seems fair, therefore, to conclude that the higher production and greater income above feed cost of the alfalfa-fed cows was due largely to the feeding of home-grown legumes. In any case it is well worth while for the farmers of one district to study the feeding practices of other districts. If legumes add to net profits, why not grow and feed more legumes? If the soil is not adapted to legumes it may pay to add lime or manure or whatever else it lacks in order that the dairy herd may be supplied with an abundance of home-grown legumes.

Both currants and gooseberries are natives of cool, moist northern climates and in the United States succeed best in the northern half of the country and east of the one hundredth meridian. They are injured by the long hot summers of the Southern States, except in the higher altitudes of the Appalachian Mountains. Even in Missouri and Kansas they do not succeed very well. They are not adapted to the hot interior valleys of California, but are grown in the northern coast counties of that State.

Big Damage from Small Leaks in Silos; How to Apply Inside Paraffin Coating

With the silo-filling season approaching, a careful examination of silos, followed by necessary repairs, will help to improve the keeping quality of the contents. According to studies of the United States Department of Agriculture, airtight walls are the chief requirement; in fact, a leak no larger than a small nail hole may spoil several hundred pounds of silage. In the case of wood-stave silos the hoops and braces should receive attention to insure close fitting.

Silos made of concrete, brick, or other material of porous or semiporous nature, are benefited by an inside coating of a preparation which seals the pores and also prevents the action of silage juices on the walls.

The coating most commonly used hitherto is coal tar thinned with gasoline and applied with a paint brush. A number of materials of like nature have been considered for this work, but the one showing the most promise is paraffin.

How to Apply Paraffin

Paraffin may be applied either cold or hot to silo walls. With the cold method, the paraffin is dissolved in a volatile carrier like naphtha until a saturated solution is obtained. Four pounds of paraffin dissolved in one-half gallon of gasoline or naphtha will make one gallon of this solution. The solution is then applied much like paint to the surface of the concrete, which it penetrates according to dryness and porosity. One gallon has a covering capacity of about 200 square feet.

The naphtha soon evaporates, leaving the paraffin in the holes. When applying the paraffin by this method, special care must be taken that there is good ventilation in the silo and that there are no lights or fires nearby. Naphtha is very inflammable, and a serious explosion or fire may result from careless use.

Walls Must Be Warm

Paraffin may also be applied in melted form. It requires 6½ pounds of paraffin to make 1 gallon of the hot paraffin solution. The work should be done on a warm day, and the concrete must also be sufficiently warmed by artificial heat so that the paraffin may be thoroughly rubbed in. One gallon will cover about 250 square feet of surface. When this method is followed, a blow torch should be used to warm the walls as the paraffin is being applied, and also to thin and spread the layer of paraffin. Two buckets of paraffin should be used, one to be heating while the other is being applied. The hot-paraffin treatment is one of the most successful for waterproofing surfaces exposed to weather, but it requires some experience to obtain successful results.

The amount of paraffin required to coat a silo may be determined in the following manner:

Multiply the height of the silo by its circumference (the circumference is the diameter multiplied by 3.1416), which gives the number of square feet of surface on the inside of the silo. If the cold method is to be used, divide the result just obtained by 200, which gives the number of gallons of the paraffin-naphtha solution required. Multiply this result by the amount of paraffin and naphtha in each gallon to obtain the total materials required.

Use of Hot Method

Where the hot method is used, divide the number of square feet of silo wall to be coated by 250 to find the required number of gallons. Multiply this result by 6½ to obtain the number of pounds of paraffin required. For example, to find the paraffin required to coat a silo 14 feet in diameter and 30 feet high:

Diameter (14 feet) × 3.1416 = 43.98 feet, the circumference of the silo.

Height (30 feet) × circumference (43.98 feet) = 1,319.4 square feet, the wall area.

Area (1,319.4 square feet) ÷ 250 square feet = 5.27, or number of gallons required.

Gallons required (5.27) × 6½ = 34.25, the number of pounds of paraffin required.

In both cases the cost may be estimated from the local price of paraffin and naphtha. It should be remembered, however, that these figures will vary with local conditions.

A GREAT MOVE FORWARD

"I consider the present plan of cooperation of the State and Federal Government with the breeder for the eradication of tuberculosis as a great move in the right direction, and if the breeders of the country will take advantage of it, it can not help but wipe this disease out of all the breeding herds of the United States." — *Alex Chambers, Owatonna, Minn.*

Loose quarters may become lost quarters. Thrift Stamps tighten your hold on them.

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DEFINITE RULES EVOLVED FOR GRAZING NATIONAL FORESTS

"Earmarks" Make It Possible to Anticipate Damage from Overgrazing

Seasonal Pasturing Accomplished by Dividing Range Into Sections and Beginning on Different Portion Each Spring

The great live-stock industry of the West is so largely dependent on the grazing lands within the national forests that the right management of these lands is of importance to every one who eats beef or mutton or wears shoes and woolen garments. A recent bulletin of the Department of Agriculture, "Range Management on the National Forests," by James T. Jardine, inspector of grazing, and Mark Anderson, grazing examiner, gives the results of the 14 years' experience in range management which the Forest Service has had since it assumed charge of the forests.

During these years the Forest Service has been working steadily to increase the country's supply of meat, wool, and hides by developing methods of handling stock on the range which will allow as large an increase as possible in the number of sheep and cattle grazed without injury to the forests. With this bulletin as a guide grazing can be made more uniform on different ranges and the best principles can be put into actual practice.

Classification of the range to determine the areas best suited to the different classes of stock is the first important step toward the best use of the grazing resource. Cattle and horses use a different sort of range from sheep. Sheep relish tender green foliage and the grains of many grasses, while cattle consume the coarse grass forage. Cattle prefer level or rolling country, and altitude makes little difference if the stock have been raised on the range. Sheep do best on smooth range and where the summers are cool. They can go from several days to several weeks without drinking, depending upon the abundance of succulent weed forage, the temperature, and the amount of rain and dew. Cattle need water oftener—at least every two days.

Earmarks of Overgrazing

Overgrazing is a cause of injury to the range which must be carefully guarded against. In the past it has been difficult to know when a range was overgrazed until the damage was considerable. Extensive experiments by the Forest Service have led to the discovery of a means of detecting overgrazing before it has progressed very far. Certain "earmarks" appear in the vegetation, such as the predominance of annual weeds and grasses, like knotweed, tarweed, and mustard, with a dense stand of such species and lack of variety in species; the predominance of plants which have little or no value for any class of stock; and the presence of dead and partly dead stumps or shrubs. Noticeable damage to tree reproduction and erosion and barrenness have long been recognized as signs of an advanced stage of overgrazing. When the fact of overgrazing has been determined the next step is to find out the cause. The bulletin takes up the various causes in detail and points out the remedies in each case.

Seasonal Grazing Beneficial

Establishment of grazing periods so as to prevent damage to the range through premature use has had as much to do with range improvement on the national forests as the prevention of overgrazing, if not more. The repeated removal of herbage year after year during the early part of its growing season causes rapid deterioration of the range. Little dam-

(*Continued on page 8.*)

BETTER POULTRY—MORE MEAT

In a southern community, following the introduction of well-bred poultry for breeding, there was noticeable improvement in the size of the next generation of the fowls. The average weight of the birds marketed was 25 per cent greater than previously, according to the observation of an experienced poultry buyer.—U. S. Department of Agriculture.

PROFIT FROM SWEET POTATOES DEPENDS ON STORAGE HOUSES

Can Not Be Held for High Prices if Stored in Outdoor Banks

Good Potato Storage May Be Provided at Little Expense by Converting Abandoned Tenant House or Other Building

During the last few years the sweet potato crop—one of the most important food crops of the South—has been so extended in acreage and so increased in production that the problem of properly saving and storing the crop has become of paramount significance. According to specialists of the United States Department of Agriculture, indications are that the output of the current year will be as large, if not larger, than any previous crop, and hence they recommend more urgently than ever before that the producers prepare properly for the conservation of this crop.

The leading sweet potato growing States, which annually dispose of their crops at the maximum prices, are those that make an extensive use of storage houses. Efficient storage is a simple method whereby the value of the sweet potato crop may be increased materially without adding very greatly to the production cost. An improvement of present methods particularly desirable in the South, where the crop is either rushed on the market at digging time, when the price is low, or stored in outdoor pits or banks, where from 25 to 50 per cent of it decays, while the portion that remains sound is not of good quality.

Growing More Sweet Potatoes

During the last three years the United States Department of Agriculture has strongly advocated the building of storage houses for sweet potatoes, and the department has maintained representatives traveling through the Southern States supplying information to growers and shippers regarding the proper construction and operation of storage houses. Increased interest has developed, as the

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planting of sweet potatoes has been expanded in nearly all the producing sections. The condition which has prevailed, entailing the marketing of the majority of the sweet potato crop at digging time, invariably resulted in a decided reduction in the price which the producer received for his output. Experience has demonstrated in a large number of cases that sweet potatoes can be marketed successfully out of storage and that the grower is justified in holding at least a part of his crop through the winter months. However, the storage proposition is not only a matter of returning a larger profit to the producer, but it is also one of downright necessity, due to the rapid development of the sweet potato industry with which storage construction has not kept pace.

In Farmers' Bulletin 970, specialists of the United States Department of Agriculture describe in detail the construction of a number of valuable sweet potato storage houses which may be built of wood, brick, hollow tile, cement, or stone, the wooden houses being preferable in most cases. For detailed descriptions interested parties should request copies of this publication from the Department of Agriculture. Plans and detailed drawings of sweet potato houses can be secured free of charge from the Office of Horticultural and Pomological Investigations of the department or from the Bureau of Markets.

Smaller Containers Best

The arrangement of the interior of the house depends largely upon the system of storage which is practiced. Some growers store their potatoes in boxes, crates, baskets, or hampers, while others store in bins. The smaller containers are to be preferred to bins where it is practicable to use them. Many growers store the potatoes in the hampers that are to be used for marketing them. This is a satisfactory plan, as it requires no outlay of money for storage receptacles, and the packages for shipping goods must be provided in any event if the crop is to be marketed. Some growers have bushel boxes made for the special purpose of storing sweet potatoes, while others employ various types of crates. In using any type of package it is necessary to provide means for ventilation. A false slatted floor is often made by nailing 1 by 6 inch boards to 2 by 4 inch scantling. An inch space should be left between the boards to allow the circulation of air. A little space should be left between the stacks of boxes, baskets, crates, or hampers. Where these smaller containers are used, especially when the same package is employed for shipping the crop, it is much easier to disinfect the storage house by spraying than when bins are used. Another advantage in using them is that when decay sets in it usually spreads only to the potatoes in the single package, whereas in the bin it might spread through the entire pile.

May Use Old Buildings

On many farms in the South there are abandoned tenant houses and various other buildings that could be converted into sweet potato storage houses at very little expense. In many towns there are warehouses, store buildings, and other structures that could be utilized to advantage for storing sweet potatoes. Such buildings should be used whenever possible before going to the expense of erecting new houses. Similar methods of insulating and ventilating should be practiced in remodeling old structures as are recommended for new sweet potato storage houses. Where the interior of the house to be remodeled is not already sheathed it is advisable to place a layer of 1 by 4 inch or 1 by 6 inch boards on the studding, then a layer of building paper, and over this another layer of matched boards. If the interior is sheathed with only one layer of boards, it is advisable to put on a layer of building paper and over this place a single thickness of matched 1 by 4 inch or 1 by 6 inch boards. The tighter the house is made, the less danger there will be of having the potatoes become chilled in case of a sudden drop in temperature.

Too much reliance is placed in storage pits and cellars for the curing and holding of the sweet-spud crop. The main disadvantages in the pit or bank method of storage are the large amount of loss due to decay, the inferior quality of the sound potatoes, the loss on the market because banked potatoes will keep for such a short period after being removed, and the inconvenience of getting the potatoes when needed, especially during cold or rainy weather.

Handling and Marketing Important

An explanation of why southern farmers have not received better prices for their sweet potatoes is that they have not used proper methods of handling and marketing. In many cases the potatoes are badly bruised and cut in digging, then are put in bags or rough barrels without grading, and rushed on the market when there is an over supply. The secrets of success in getting high prices are to grade, clean, and pack the product carefully and to put it upon the market when there is a keen demand. The greatest demand for sweet potatoes is, as a rule, from the middle of December to the middle of March. The market demands a medium-sized, uniform type of sweet potato, free from bruises or decayed spots. In grading, all undersized and the large, overgrown, crooked, broken, or bruised potatoes should be kept at home for feeding or for canning. The best potatos will bring more money than will both the culls and the primes marketed together. Two market grades are sometimes made, the "extra selects" or "primes" and the "seconds," but the southern farmer will do well to make just one market grade and keep the others for home use or for feeding to his live stock.

After carefully grading, sweet potatoes should be put in clean, neat, attractive packages. Bags should never be used, as the potatoes in them become badly bruised when handled. The standard veneer potato barrel with a burlap cover is often used in summer or autumn, but for winter shipment the double-headed stave barrel or tight box is often used. The small type of package, such as the bushel hamper, bushel box, or basket, is gaining in popularity. A neat and attractive package of well-graded potatoes will bring a good price at almost any time, even when the market is overstocked with inferior goods. Sweet potatoes, when shipped during the winter, should be protected from the cold. When a potato becomes chilled its quality is impaired and decay soon follows. In cold weather the package should be covered with paper and the cars heated, in order to prevent chilling the potatoes. Some shippers report that it pays to line their baskets and barrels with paper.

NEIGHBORHOOD COOPERATION ROUTS ARMY-WORM ATTACK

When army worms recently made an invasion on a La Grange County (Ind.) farm, the entire neighborhood, at the call of the county agent, made a counterattack, and the result of their work is an outstanding example of what real neighborhood cooperation means in controlling insect pests. After hearing a talk by the county agent on how to fight the worms through the use of poisoned bran bait and the plowing of furrows around the infected areas, the farmers set about the task, and by nightfall of the day after the worms had been found their advance was entirely stopped. Though prompt measures were taken to control the army worms, and their ravages were confined to a limited area, they destroyed 25 acres of rye and half of a pasture. Organized effort prevented extremely heavy loss.

It is said that exposure to weather causes greater destruction to farm implements than using them. Avoid this loss by storing all machinery and tools properly under shelter before winter sets in.

Prepare Gilts Now for Spring Breeding; Should Have Access to Good Forage Crops

Help the gilts now to develop and get in condition for breeding next spring. By early August, in practically all sections of the country, the gilts farrowed last spring and selected for future breeding work are all weaned and ready to be primed for next season's work.

A brood sow to be conditioned properly should be in such flesh at breeding time that she will gradually increase her weight according to normal and natural development from that period until the date of farrowing. In order to maintain her in desirable condition, she must be supplied with plenty of protein. Whole oats fed in a self-feeder is an excellent nutrient for growing gilts. In addition, the young females should have access to good forage crops such as alfalfa, clover, rape, rye, or any of the other small grains. A small allowance of corn is also advisable. Shorts or middlings can be fed with considerable success. A combination, recommended by specialists of the United States Department of Agriculture, consists of a mixture of shorts or middlings, oats supplied cafeteria style, corn in limited quantities, and succulent pasture ad libitum.

Gilts should not be allowed to fatten materially, as ordinarily a fat sow is a poor breeder and mother. On the other hand, a well-grown gilt which is not allowed to store up surplus avoirdupois makes a satisfactory brood sow for the following year if she is properly handled, other conditions being equal.

TICK QUARANTINE REPLACED ON ARKANSAS COUNTY

According to an order issued by the United States Department of Agriculture, the Federal quarantine for the cattle-fever tick was replaced August 15, 1919, on Nevada County, Ark. The quarantine will mean that cattle can not be shipped interstate from Nevada County except under the regulations promulgated by the Secretary of Agriculture.

Nevada County was released from quarantine on December 1, 1917, cattle ticks having been reduced in number to such an extent at that time that it was believed a slight amount of eradication work would result in their complete eradication. But the county has failed to furnish the necessary cooperation to complete the "mopping-up" work, with the result that ticks have multiplied until they are a menace to nearby counties, which have eradicated the parasites or are preparing to do so. Ticks are more widespread in Nevada County than at any time since the county was released from quarantine. Inspectors of the Bureau of Animal Industry state that they have been unable at any time to have violators of the State dipping law prosecuted in the courts of the county.

All other released counties in Arkansas seem to be doing satisfactory "mopping-up" work, and it is not anticipated that any other replacement of quarantine will be necessary. It is also believed that a large amount of Arkansas territory will be released from quarantine next December 1, if the present spirit of cooperation is manifested throughout the dipping season.

WELL-PACKED HIVES WILL PROTECT BEES FROM COLD

Bees may be successfully wintered out of doors if the apiary is well protected from wind and the hives are properly packed with insulating material to retain the heat generated by the bees, according to Farmers' Bulletin 1012, published by the United States Department of Agriculture. A grove of trees, an adjacent hill, or near-by fence can be made to serve as a satisfactory windbreak. The packing, which should usually be done during October in the North Central States, should completely surround the hive, including the bottom, but the bees' entrance should remain open, though reduced in size. Cork chips, sawdust, fine shavings, dry leaves, chaff, and similar material should be used and packed tightly in a box built about the hive, allowing from 6 to 8 inches space for the insulation.

For a climate such as that of Washington, D. C., it is found desirable to provide 4 inches of packing underneath the hives, 6 inches on all sides, and 8 or more inches on top. In warmer climates less will be needed, but the beekeeper must not think that simply because he lives south of Washington he can be safe with less packing or none at all, according to the bulletin. The amount indicated for Washington has been used with success in places as cold as northern Ohio and even in Canada, but in these places the insulation during the coldest seasons is usually augmented by heavy snows. These are not at hand every winter or may be lacking during the coldest part of the winter, and it is, therefore, wise to provide more packing, especially on the sides and top. For a climate such as that of New York or Wisconsin 8 inches of good packing on the sides and 1 foot on the top probably will be enough for good wintering every year.

There is no virtue in any special type of packing case to surround the hive, but in all types there are a few points which must be observed. There must be provision for abundant packing on the top, bottom, and sides, the entrances must be small, the case must be rain-proof, and the construction of the case should be such that it may be taken apart and put together easily. The parts of various cases used in one series of apiaries should be interchangeable.

Copies of this bulletin, together with Farmers' Bulletin 1014, "Wintering Bees in Cellars," can be had by applying to the United States Department of Agriculture, Washington, D. C.

FACTORS IN LIVE-STOCK PRODUCTION

Where live stock is a factor on the farm, make every field hog-tight and sheep-tight; have thoroughly good permanent pastures; grow leguminous crops; build a silo, and keep only pure-bred males. These five things are absolutely essential in the economical production of live stock. Of course this program calls for some labor and expense, but the permanent condition of prosperity in the sections devoted to live-stock production is proof of the good profit derived therefrom.

LONDON WOOL SALES OPEN TO BUYERS FROM AMERICA

The next series of London wool sales will be open to American buyers, according to an announcement from the British ministry of munitions, wool section, transmitted by a special cable service from the American consul general for the Bureau of Markets, United States Department of Agriculture.

August 11 to 22 are the dates fixed for the next sales, and it is said that 41,000 bales of Australian and 29,000 bales of New Zealand wool will be offered during this series. Permissible quantities in both merinos and crossbreds will probably be determined for each country participating in the sale.

On account of the scarcity of coal there will probably be a large amount of wood used as fuel this winter. Use all the waste timber, dead and dying trees for this purpose and be sure to conserve the ashes for garden fertilizer. They are rich in plant food, particularly potash.

Weekly News Letter

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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ALABAMA COUNTY SETS RECORD IN LIVE-STOCK SHIPMENTS

Many persons think of Alabama as a producer and seller of cotton and as a buyer of practically all other agricultural products. But shipments from Geneva County, Ala., from April 1, 1918, to April 1, 1919, show otherwise. This county exported 473 carloads of hogs, 98 carloads of cattle, 288 carloads of peanuts, 54 carloads of hay, 38 carloads of corn, and 15 carloads of velvet beans, an output of which many well-developed agricultural counties in the eastern and northern States would feel proud.

Furthermore, it is notable that these totals show, in the main, decreases from those of the preceding 12 months, as the corn shipments declined from 141 to 38 carloads, while the velvet bean exports dropped from 45 carloads to 15. These decreases were due to extremely dry weather and an unfavorable season. On the other hand, despite the relatively limited supplies of home-grown feed available, the carload shipment of hogs increased from 385 to 473 cars, a gain of approximately 22 per cent. In view of the fact that only 40 per cent of the acreage of Geneva County is now under cultivation, and that, furthermore, only 40 per cent of this area is producing more than 50 per cent of its actual capacity, the agricultural exports are extremely significant, and indicate that as far as agricultural advancement is concerned this section of Alabama is yet in its infancy.

Superior results can be attained, say specialists of the United States Department of Agriculture, by the use of hogs and cattle of better type and breeding; by the careful selection of seeds; by the practice of approved methods in the management of live stock, as well as in the cultivation of the soil, and finally by following the best of business methods, such as are practiced by leading farmers throughout the country.

INVESTIGATIONS SHOW DUCKS DIE OF EATING SHOT IN MUD

Wild ducks and other waterfowl sometimes die from lead poisoning, resulting from swallowing stray shot which they pick out of the mud about shooting grounds. Many ducks that become sick from lead poisoning finally recover, but it is probable that the effect is permanently injurious, not only to the individual, but to the species. It has been ascertained by experiment that lead greatly impairs the virility of male domestic fowls. Females mated with them lay many infertile eggs, while in many of the eggs that are fertilized the embryo dies in the shell or the chick emerges weak and unable to withstand the hardships of early life. What effect lead poisoning has on female wild fowl has not been definitely ascertained; but, as the fact is well known that lead produces abortion in female mammals, there is a possibility that it exerts a bad effect on female waterfowl during the breeding season. Thus the supply of waterfowl is likely to be decreased by lead poisoning, not only by the number of birds that die directly from it, but indirectly by impairment of reproduction.

These facts are set forth by the United States Department of Agriculture in Bulletin 793, "Lead Poisoning in Waterfowl," about to be published as a contribution from the Bureau of Biological Survey. Reports of waterfowl apparently sick from lead poisoning have been coming in for several years. The Biological Survey undertook an investigation at various shooting grounds to determine how common the taking of shot by waterfowl is, and a series of experiments to ascertain the effect of shot swallowed. It was found at places where much shooting is regularly done from blinds, shot at the bottom of the shallow water are so numerous that one or more was found in practically every sieveful of mud or silt, and that they are swallowed by waterfowl whenever found, as a result of their habit of swallowing small, hard objects to supply grit for the gizzard.

The experiments have shown that shot swallowed are gradually ground away in the gizzard and pass into the intestines, producing a poisoning that results in progressive paralysis and usually death. Experiments with wild waterfowl captured when young and reared in captivity—to obviate the possibility of their having taken lead before the beginning of the experiments—have shown that six pellets of No. 6 shot constitute an amount of lead that is always fatal. Two or three shot were sufficient to cause death in several instances. In one experiment, two mallards were given one No. 6 shot each. One of them died in nine days and the other was able to throw off the poison.

The list of species known to have been poisoned by eating shot consists of mallard, pintail, and canvas-back ducks, the whistling swan, and the marbled godwit, but many other species, particularly of ducks and geese, are undoubtedly affected by it, according to the bulletin.

Unfortunately, nothing can be done at this time to protect waterfowl from lead poisoning except to call attention to the malady, and to make known its cause and symptoms. The department, however, desires statistics on the numbers and species of birds affected and asks that sportsmen and others report to the Bureau of Biological Survey all cases that come to their attention.

HAS FIRST TB-FREE ACCREDITED DAIRY HERD IN SOUTH DAKOTA

To J. A. Speirs, of Hand County, S. Dak., goes the honor of having the first tuberculosis-free accredited dairy herd in that State. Mr. Speirs believes in healthy animals as a basis for the production of sanitary, wholesome food, and in order to secure the Department of Agriculture's guarantee of a clean herd he willingly submitted his animals to a number of painstaking applications of the tuberculin test.

Here are a few reasons why it paid Mr. Speirs to have his herd certified as "TB.-free." In the first place, his surplus animals, which he offers for sale, are attractive to prospective buyers because of the Federal certificate showing that the cattle were found to be apparently free from the white plague. The fact that he owns an accredited herd signifies to the wise that he is a breeder, an upbuilder of better cattle, rather than a jobber, who handles cattle merely for rapid turnover. He has the satisfaction of knowing positively that market milk sold from his farm will never cause the death or serious illness of defenseless babies and children. At any time Mr. Speirs can ship individuals of his herd, or the entire herd, from one State to another without immediate tuberculin test, due to the fact that his herd is on Uncle Sam's accredited-herd list.

Better Baled Hay Gives Stock More Feed; Neat and Uniform Work Brings Top Prices

Were it as easy and simple to save hay when it rains as it is to make hay when Old Sol has his blast furnaces working to capacity, hay producing and marketing problems would, to a certain extent, be simplified. To put a gauge on the weather man and to regulate the amount of dew, rain, and sunshine served out during the hay-making season would be the hay farmer's dream of Utopia. Although the hay raiser can not cash in on any such a vision, he can materially improve his hay revenue by more careful market preparation of his cash crop of forage. Uncle Sam wants to help every farmer to make the most of his surplus hay crop, and hence he has just published Farmers' Bulletin 1049, which is replete in helpful hints and practical suggestions on when, why, and how to bale hay and manage baling crews.

Hay is graded according to the way in which it is baled. Bales of uniform size and of neat, attractive appearance bring top prices, other conditions being equal, while ragged, unsightly bales are penalized. In baling hay for market, various practices are in operation; some are followed unconsciously or in order to avoid extra work, while others are followed deliberately with intent to deceive the buyer, which tend to lower the market value of hay in the bale irrespective of its actual quality.

Hay Presses Are Helpful

The new Department of Agriculture publication describes the various types of hay presses, discusses their adaptability and operation under different conditions, and gives detailed information concerning the management of baling crews. The question of owning a press or hiring the work of baling is rather fully considered, as it is believed that many hay growers who now hire custom balers would do well to give careful consideration to the advantages that may accrue from having a press on the farm.

One-horse, perpetual presses, made by reliable concerns, are capable of turning out the same kind of bales as are made by the regulation two-horse presses. They are designed for the farmer who has a small acreage of hay, and they can be especially recommended for the small hay grower if he is in a section where little hay is grown and where hay presses are scarce and hard to hire. The only objection to this type of press is its small production a day. If the prospective purchaser is in doubt as to which size to buy, it would probably be better in many instances for him to buy the two-horse press. The one-horse press can be used to advantage if hay is baled from the stack or barn at a time when there is no urgent need to do other farm work.

The two-horse, full-circle, or continuous-travel, perpetual press is the type of horse press most extensively used. In operating this machine the horses travel in a circle. In buying a press of this type the purchaser should pay especial attention to the power mechanism, the material used for important parts of the press, size of the feed opening, plunger return device, self-feeding attachment, and convenience in tying the bales, and in setting and moving the press.

Large Growers Use Power

Large hay growers and shippers who buy and bale large quantities of hay generally use power presses. These are in common use in sections where the usual practice is to bale hay from the windrow or the cock, such as the alfalfa and Johnson grass and prairie hay sections of the South. They are sometimes used in preference to the two-horse type on alfalfa and Johnson grass hay farms, even where the hay acreage is comparatively small, say from 50 to 75 acres, for the reason that they will bale hay about twice as fast as it could be done with a two-horse press, thereby greatly lessening the danger of injury to hay due to bad weather.

As power to drive hay presses, the steam engine, portable or self-propelling, has been almost entirely superseded by the gasoline or kerosene engine. With a gas engine there is no need for an engineer and a water hauler. A few owners employ an engineer when doing custom baling with a fast-working crew, because he keeps the engine going and saves expensive loss of time on the part of the press crew. When the crew is hired by the ton the men are not paid for time lost on account of a breakdown, and in such cases engineers are not often employed. Usually one of the press crew looks after the engine when it requires attention. On farms where tractors are used, if the tractor is not needed for other essential work when it is time to bale hay the belt power press should ordinarily be used, since it costs less than the motor press and since it would not be good business to use a motor press while a tractor stands idle.

In northeastern Oklahoma specialists of the United States Department of Agriculture ascertained that the average life of a power press was 14½ years. Power presses were used an average of 47 days a year and baled 1,000 tons a year, or a total of 14,500 tons. The repairs amounted to about 2 cents a ton baled, and the total machinery charges, including repairs, interest, and replacement charges, amounted to about 7½ cents a ton. In the alfalfa belt of the South it was found that the average life of a power press was 12½ years, in which it baled a total of 7,500 tons of hay. It was used about 41 days a year. The repairs amounted to 3½ cents a ton baled, and the total machinery charges, including repairs, interest, and replacement charges, amounted to about 15 cents a ton. That the cost of repairs for power presses was higher in the alfalfa district was partly due to the fact that many press owners had had little experience with hay presses; partly to carelessness on the part of laborers, and partly to the condition of the hay, as "tough" hay is hard on the press. A good belt power press can be purchased for from about $400 to $600. The motor presses equipped with engine cost from about $600 to $800, depending upon the make and type.

Bale Size Influences Price

The size of bale that a press makes sometimes has a great effect on the selling price of the hay. On some markets the difference in selling price between hay in large bales and that in small bales is considerable. The successful grower of market hay keeps informed as to just what the market, to which he ships his hay, demands in type, size, and weight of bale. Some feeders object to tightly baled hay, because they believe that the "life" is pressed out of such bales. Some prefer the large, loosely pressed bales, believing that the hay in them has a greater feeding value than that in small, heavily pressed bales. Occasionally small bales are desired on account of the ease with which one man can handle them or because it is easy to detect the presence of spoiled hay in them. To realize the greatest possible profit from the sale of his hay, the hay grower must put his hay into a bale that will meet the feeder's ideas rather than his own.

In shipping baled hay it frequently happens that it is not possible to load to even the minimum weight with lightweight bales if the car is of the older and smaller type. In some instances it is impossible to load the minimum weight into a car with bales weighing from 60 to 70 pounds, whereas if the same-sized bale contained from 90 to 100 pounds this difficulty would not be experienced.

It is important to make bales that will at least load cars to their minimum weight, provided a serious discrimination in price does not result from their being overweight. In a few instances the trade will now take a heavier bale than formerly and pay the same price a ton as for the lighter bale. The feeding value of hay is not impaired in the least when it is tightly baled.

This farmers' bulletin also discusses in detail the baling of hay both from the barn and stack. Suggestions are made regarding the location and operation of the press in the barn, field, and stack; duties of the press crew; wiring and tying bales; pitching to the press; and size and management of baling crews.

Economy of Buying a Press

The advisability of buying a hay press depends upon the amount of hay to be baled yearly, the likelihood of being able to obtain a crew when needed, and the rate charged by those making a business of doing custom baling. Whether it will pay the grower to own a press depends upon whether the total cost of baling, including labor, repairs, interest, and depreciation, is less than the rate charged by the custom baler.

SHEEP GROWING PROFITABLE IN NORTHWESTERN AREAS

Sheep keeping in the irrigated regions of the Northwest might be made a source of profit by many more farmers. Numerous farmers scattered throughout the northwestern irrigated districts have found it a profitable business for a number of years and have gained experience which should be of benefit to other owners of irrigated farms. The results of their experience have been embodied in United States Department of Agriculture Bulletin 1051, "Sheep on Irrigated Farms in the Northwest," available on application.

Methods of handling and feeding sheep as practiced on 12 representative farms, large and small, in various parts of the Northwest are described in detail. On most of these farms sheep husbandry is combined with some other major enterprise, such as dairying, hog raising, orcharding, or growing sugar beets, but a few of the farmers specialize in sheep. It is believed that one or more of these 12 farmers has come in contact with practically every difficulty that is likely to confront the sheep grower on irrigated lands in the Northwest. In most cases they have found some means of avoiding, or at least of mitigating, the difficulties.

Special attention is given to methods of establishing pasture grasses and pasture supplements, as pasture is one of the most serious problems of introducing sheep on an irrigated farm. Possibilities are pointed out for combining farm sheep growing with the range sheep industry. The farmer who expects to grow grade sheep may be able to buy his ewes from the range more advantageously than elsewhere. The grower of pure-bred sheep may find an excellent market among range men for his ram lambs. A profitable combination between irrigation farmers and range men is frequently possible, the sheep being run on the range during the summer and fall, brought to the farm at the beginning of winter, and kept there until after lambing time in the spring.

The conclusion is reached that there are many irrigated farms throughout the Northwest on which small flocks of sheep could be kept with profit if given proper care. The present outlook for the sheep business appears to warrant further expansion, and there seems to be no reason why many more farmers should not keep at least small flocks. In some localities county agents and other extension workers of the United States Department of Agriculture and the State agricultural colleges are holding farmers' schools or institutes for the purpose of disseminating information relative to the sheep industry.

American Buffalo Increase Sevenfold; Department May Give Surplus to Public

Provision is made in the 1920 Agricultural appropriation act for the Secretary of Agriculture to give buffalo to municipalities and public institutions from any surplus which may exist in the herds now under the control of the Department of Agriculture. In order to aid in the propagation of the species, the bill provides that animals may be lent to or exchanged with other owners of American bison. No provision is made to give them to individuals, and only one may be given to each municipality or public institution.

This provision is made because of the surplus of bulls in some of the Department of Agriculture's buffalo herds, particularly the one in the Wichita National Forest and Game Preserve, in Oklahoma, and because the department is nearing the realization of the first stage in the preservation of the species—the acquisition of at least 1,000 head of buffalo by the Government.

Have Increased Seven Times

There are approximately 7,000 buffalo in North America. Canada has something over 3,500, and the total number in the United States is more than 3,000. This is about seven times the number in the United States in 1889, when the first buffalo census was taken. Individuals in the United States own approximately 2,000 of the total number in this country. There are eight Government herds, six of which are under the control of the Department of Agriculture. The largest herd in this country is in charge of the Interior Department, and is located in the Yellowstone National Park, where there are about 450 bison. The Smithsonian Institution now has a herd of 18 at the National Zoological Park, Washington, D. C.

The first herd of buffalo under the Department of Agriculture was established in 1906 on the Wichita National Forest and Game Preserve. The original herd consisted of 15 animals, the gift of the New York Zoological Society, and this has now increased to more than 100 animals without any outside additions.

Two New Herds Established

Two herds have been established in the past year, one in Sullys Hill Park, North Dakota, the other in the Pisgah National Game Preserve, North Carolina. The other herds supervised by the Department of Agriculture are located in the Montana National Bison Range; the Niobrara Reservation, Nebraska; and the Wind Cave Game Preserve, South Dakota.

The plan of the department is to establish at least 10 herds, widely distributed, in order to prevent the spread of any contagious disease, should it become uncontrollable in any of the herds.

PIG-CLUB WORK GROWS IN TENNESSEE

Two years ago there were only 58 boys enrolled in the pig clubs of Tennessee. Since then pigs have become favorite pets among the boys of the State. In 1918, 4,200 pigs were raised by the club boys, and this figure will be greatly exceeded in 1919. As far as possible the boys are urged by the county agents to add corn work to their pig-club work, and are discouraged in buying feed when it is possible to raise it at home. At the fairs held in Tennessee, no single type of exhibits has compared in interest with the pig-club exhibits. Pigs exhibited by the boys are fully up to the best standards of the shows.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

New Force Starts Corn-Borer Clean-up.

In the next few days the United States Department of Agriculture will open a field laboratory near Schenectady, N. Y., for the purpose of conducting a survey of European corn-borer conditions in that State. A force of about 25 inspectors will be thrown in the field and a complete survey will be made as quickly as possible. All material collected will be sent to the laboratory, the exact location of which has not yet been decided upon, for determination as to whether or not it is European corn-borer or native species. The infestation in New York is not nearly so widespread as that in Massachusetts, but it is none the less serious, and calls for energetic measures. Actual clean-up work can not be begun until after frost, but before that time information will be gathered to show what area the clean-up must cover.

Favors Better-Sire Crusade.

In answer to letters sent by the Department of Agriculture to live-stock associations, agricultural colleges, practical breeders, and men throughout the Nation interested in better live stock asking for comments on the better-sire campaign to be conducted by Federal and State officials, more than 97 per cent of the replies favor the campaign as outlined. Of the 566 replies received by the department up to July 28, a total of 550 favored the campaign, 13 showed some doubt as to the advisability of holding it at this time, and only three were adverse to the plan. All the replies received from live-stock associations and from State departments of agriculture indorsed the crusade. Replies from 31 professors of animal husbandry and dairying in State colleges showed that none opposed the plan and only three were skeptical. County agents are ready to support the movement, the replies from 365 of them showing that 358 are favorable. Many indicated that the campaign would greatly strengthen their efforts in the work of live-stock improvement. Letters from field agents, agricultural paper editors, extension officials, breeders, and stockmen were almost unanimously favorable.

Homemade Devices Cool Kitchens.

It is cooler in 10,345 southern kitchens this summer, for that many housekeepers in the South have made fireless cookers and iceless refrigerators with the aid of the home-demonstration agents during the past year. This number includes only those taught directly by the extension workers. It is impossible to estimate how many more learned from their neighbors how to make and use these hot weather comforts.

Southern women in home clubs during 1918 made and installed altogether 58,394 devices for saving labor and improving sanitary conditions. Of this number, 6,837 were fireless cookers, 3,508 iceless refrigerators, 15,703 fly traps, 14,342 fly screens, 1,764 improved ironing boards, 411 wheel serving trays, 187 shower baths, 864 kitchen cabinets, 985 water systems installed, 615 driers for home use, and 14,178 other labor-saving devices. There were 28,620 more women who bought labor-saving devices, because they had learned through demonstrations of their value. This number included water canners, steam pressure cookers, lighting plants, and various other articles which make for the comfort and health of the home. The clubs organized through the efforts of the United States Department of Agriculture, and the State colleges are schools of instruction in family betterment and community welfare, clearing houses of neighborhood knowledge, and public exchanges where patterns, magazines, recipes, and ideas are given and taken.

Bobolinks May Be Shot.

Rice growers of North Carolina, South Carolina, Georgia, and Florida sustained a loss of $150,000 last fall from the depredations of ricebirds, known also as reedbirds or bobolinks. This fact was determined by investigations of the Biological Survey, United States Department of Agriculture.

The only control measure is shooting the birds in the rice belt or in migration to it. Therefore, the Secretary of Agriculture, under authority of the migratory-bird treaty act, has authorized the shooting of bobolinks, under restrictions. The shooting must not begin earlier than half an hour before sunrise and must not be continued after sunset. The season during which bobolinks may be shot varies. It runs from September 1 to October 30, inclusive, for the States of New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia, and from August 16 to November 15, inclusive, for the States of Virginia, North Carolina, South Carolina, Georgia, and Florida. Birds killed may be used as food by the persons shooting them or may be transported to hospitals or other charitable institutions for use as food, but must not be sold or shipped for purposes of sale or be destroyed or wantonly wasted.

This bird ranges in migration from Canada to Paraguay. It is a highly esteemed songster in the Northern States, where it nests and where it is known as the bobolink. In addition, its food habits in its breeding range are distinctly in the bird's favor. It begins to be somewhat of a pest, however, in the first stage of its southern migration in the Middle Atlantic States, where it is known as the reedbird. It reaches the rice fields about August 20, when the rice is in the milk, and overruns the fields. From then until the ricebird departs for its winter home in South America the planter is constantly worried by its ravages. A loss of 10 per cent of the crop in the areas affected is common, despite all efforts at scaring the birds away.

Live-Stock Imports Resumed.

Recently 378 sheep, 111 cows and heifers, 6 horses, and 1 Berkshire boar pig arrived in New York from England on the steamship *Michigan*, according to the United States Department of Agriculture. Included in the shipment were 70 yearling lambs of Hampshire, Cotswold, and Suffolk breeding, while the cows were mostly Guernseys and Jerseys, all of the animals being pure breds purchased for use as foundation stock and in improving the herds of United States breeders. This shipment of live stock is one of the first which has reached this country from the British Isles since the outbreak of the war and marks the resumption of live-stock trade between the two countries which was abruptly curtailed by the activities of the U boats.

The "Sixty-five Year Midget."

In 1854 and the two following years the wheat crop over rather a wide area was severely damaged by a little insect called the wheat midge. The loss in New York alone was estimated at $15,000,000. As a result, many farmers in that State abandoned the growing of wheat. The

farm journals at that time were full of discussions of the midge. But for years subsequently the wheat midge was not particularly troublesome. Gradually, both farmers and entomologists forgot about it or remembered it only as one of the pests that used to be. And so it went on for more than 60 years, until very recently. Then the wheat midge gave evidence that it isn't out of business.

Entomologists of the United States Department of Agriculture say that there is considerable midge injury in New York, Pennsylvania, Maryland, West Virginia, and Virginia. During all these 60 or more years, of course, the midge has been present, but in such small numbers as not to be noticed particularly. Because it was not doing any very serious injury, no thoroughly systematic study was made of the insect. The department experts are inclined to believe that several species are included under the name of wheat midge. Such life history data as are available do not seem to harmonize sufficiently for one species. The probability is, they think, that conditions are very rarely favorable for all of the species at the same time and, until such a universally favorable season occurs, the midge does not inflict enough damage to be particularly noticeable. The department, through the Bureau of Entomology, is undertaking a systematic study of life history together with other investigations that will result in a much more thorough understanding of the insect than has ever been had up to this time.

It is not regarded as at all likely that the wheat midge will ever again inflict such heavy damage as it did in 1854.

Hopperdozer Collects Grasshoppers.

No modern implement of warfare terrorizes the enemy more than the hopperdozers, built according to plans recommended by the United States Department of Agriculture, terrorizes grasshoppers. Ten bushels of grasshoppers were captured in two hours on one farm in Morgan County, Ind., by the use of a hopperdozer built by the county agent in order to control a serious outbreak of the pests. Continued use of the device has resulted in the control of vast hordes of the insects which have done considerable damage on many farms in the county. The catcher is about 15 feet long and 6 feet high. Near the bottom is a trough leading into a big screen cage at the back. The device was drawn by two horses over a clover field after the crop had been cut. The agent reports that at times the pests were so thick as they jumped into the catcher that they presented the appearance of a cloud. Complete directions for building and operating a hopperdozer will be furnished by the United States Department of Agriculture.

See Need for Emergency Feed.

The protracted drought through the northwestern section is showing to farmers the need for carrying emergency feed for the live stock during unfavorable seasons. Specialists of the United States Department of Agriculture point out that shortages of rainfall are likely to occur frequently in this territory and that it is essential that live-stock farmers carry over feed reserves as insurance against dry weather and stunted crops.

Pastures for Drought-Hit Stock.

The activities of the United States Department of Agriculture in saving thousands of cattle from starvation last season by transferring the animals from the drought-stricken regions of Texas to other southern pastures were so successful that Federal officials are rendering similar assistance this season to the stockmen of the Northwest who are suffering severely from dry weather and short pastures. Representatives of the Federal department are cooperating with State departments of agriculture, the agricultural colleges, and the Railroad Administration in moving the live stock from the drought-stricken districts to available pasture lands wherever they can be found. A survey is being made in Wisconsin, the upper peninsula of Michigan, Oklahoma, Kansas, and sections of the corn belt, to locate available pastures. Prospects are that the majority of the cattle will be accommodated on grass land, so that the meat losses resulting from the drought will be small.

Calls Tuberculosis Conference.

The first conference ever held in this country for the exclusive study of tuberculosis in animals has been called by Dr. Mohler, Chief of the Bureau of Animal Industry, United States Department of Agriculture, to be held in Chicago October 6 to 8, in connection with the National Dairy Show. The conference will be attended by Federal and State officials and veterinarians interested in the control of tuberculosis, and the purpose will be to discuss various phases of the tuberculosis-eradication campaign. Plans will be made to work out uniform methods of conducting the campaign in various States, a feature favored by practically every State sanitary official who is authorized by State law to control and eradicate live-stock diseases. The program, which will include addresses by Federal and State officials, will be announced in the near future.

Gather Turpentine and Rosin Facts.

As an aid to the development of the naval stores industry, statistics regarding production and supply of turpentine and rosin are being collected by the United States Department of Agriculture through specialists in the Bureau of Chemistry.

Blanks on which to report have been sent to all producers and users in the United States whose names and addresses are available. This information will show the amount on hand April 1, 1919, the quantity made this season up to August 1, the amount actually on hand at the stills August 1, and the estimated production for the balance of the season. It is expected that the data will be published by September 1.

Similar statistics regarding last season's production and available supply of rosin and turpentine proved to be of much interest to producers and consumers alike. Information regarding last season's output, or blanks for reporting this season's supply, may be obtained upon application to the United States Department of Agriculture, Washington, D. C.

DEFINITE RULES EVOLVED FOR GRAZING NATIONAL FORESTS

(*Continued from page 1.*)

age is done after the plants have mature seed, but it is not practicable to allow all of the range to go ungrazed until after the seed matures. The problem is to work out seasonal grazing which will result in the maximum production of forage and live stock year after year. The usual way of doing this is to divide the range into several parts and begin grazing early on a different portion each year for a series of years.

The practical information necessary in carrying out the various principles that govern range management is given in detail in the bulletin. Suggestions are made regarding watering, salting, herding, the establishment of drift fences, the eradication of poisonous plants, the protection of wild life, stock driveways, breeds of stocks, lambing grounds, and the proper care of ewes and young lambs.

Dried pressed potato is very efficient in producing rapid gains and a high finish when fed to swine, United States Department of Agriculture investigators have found in a search for a suitable way to dispose of cull potatoes. To give best results they must be fed in combination with feeds rich in protein, such as oil meal, fish meal, and tankage.

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FURNISHES PUREBRED BULLS IN EXTENSIVE BREEDING TESTS

Department Cooperates in Experiments With University of Idaho

Aims to Determine Method that Will Produce Better Animals in Large Numbers; Various Ways to be Compared

With the shipping of two purebred dairy bulls to the University of Idaho, at Moscow, an experiment which will be watched with interest by cattle breeders was started by the Dairy Division of the United States Department of Agriculture in cooperation with the university. These two bulls, one a Holstein and one a Jersey, will be used with the university herds in an experiment to determine the best method of fixing and insuring the uniform transmission of high production in dairy cattle.

According to the rather unique agreement with the University of Idaho, the Dairy Division will furnish the bulls to be used in the experiments, while the university is to supply the cows for the herds, not less than 12 cows being required for each herd. The expenses of feeding and caring for the animals will be borne by the university, and accurate records will be made and supplied to the Dairy Division on the production of milk, butter-fat test, date of calving, etc., of all dams and daughters of the herd.

To Increase Better Animals

The object of the work is not only to improve the high-producing animals now existing, but to determine the method of breeding that will produce the better animals in large numbers. Breeding work heretofore has been aimed largely at the breeding of high-producing cows only, without any attempt to compare the various systems of breeding, or to follow any definite system of breeding that would prove or disprove the present theories. The cooperative work with the University of Idaho is a part of a general plan formulated by R. R. Graves, of the Dairy Division, for extensive breeding experiments involving a large number of animals and extending over a number of years. These experiments will be carried out directly with the herds of the Dairy Division and cooperatively with herds of State experiment stations and individual breeders, and will undoubtedly furnish some valuable and accurate data for future breeding.

Methods to Be Compared

The breeding methods which will be compared at the University of Idaho are inbreeding versus outbreeding and line breeding versus outbreeding. Holsteins and Jerseys predominate in the university herds. The former will be used in the inbreeding and the latter in the line breeding experiments.

COUNTY HAS FARM BULLETIN BOARDS

The farm bureau of Clinton County, Iowa, has planned to place a bulletin board in every community center in the county—20 in all. These boards will carry four news letters of ordinary size paper. Volunteers will be found to whom news letters can be sent and who will post them on these boards.

UNITED STATES SELLS BREEDING SHEEP

The Bureau of Animal Industry of the United States Department of Agriculture has consigned 25 Rambouillet rams and 15 Corriedale stud lambs to the National Wool Growers' Association annual lamb sale, which will be held August 26 to 29. These breeding sheep come from the United States Sheep Experiment Station at Dubois, Idaho. Specialists of the Department also report that they contributed 12 Southdown rams from the Morgan Horse Farm, Middlebury, Vt., to the ram sale which was held at the Eastern States Exposition, September 14 to 20, this auction being for the benefit of sheep breeders of the New England States. Recently the Department has sold 13 Southdown rams and 4 ewes to West Virginia farmers and breeders through the assistance of the State cooperative sheep extension agent.

FISH MAY BE SHIPPED FAR BY FREIGHT IF WELL PACKED

Proper Icing and Good Stowing Described By Investigators

Refrigerator Cars Used Must Shut Out All Light; Bunkers Should Be Iced Twelve Hours Before Loading

The speed at which fish decay is not so striking as the length of time that fish will keep under proper conditions, according to the Food Research Laboratory of the Bureau of Chemistry, United States Department of Agriculture. Investigations in the handling of fresh fish—from the catch to the consumer—which have been underway for several years, have shown that when refrigerator cars are properly iced and the fish are properly packed, they can be transported even in midsummer for distances requiring five days of travel, and they will reach the market in excellent condition for eating. In fact, fish so shipped will be much "fresher" at the markets than fish shipped without refrigeration in fast express cars for 24 hours or less.

For successful shipping of fish by freight in refrigerator cars, the investigators outline the following instructions:

Keep Fish Packages Off Floor

Select a refrigerator car that has doors and hatches so tight that not a ray of light can enter. If the car is not provided with a rack in the floor, build one, placing 2 by 4 stringers lengthwise of the floor and nailing crosswise slats—1 by 3 inches—about 1½ inches apart. No car of fresh fish should be shipped without a rack on the floor.

With the car prepared, the bunkers should be filled with ice at least 12 hours before loading. The pieces of ice should not be larger than a man's fist. Just before the car is loaded the ice in the bunkers should be replenished, and on top of the ice should be placed coarse gray rock salt in the proportion of 5 per cent of

the ice. Most refrigerating cars will require from 3,500 to 5,000 pounds of ice in each bunker. If the capacity of the bunkers is not marked, it can be determined by counting the number of cakes used, in the case of artificial ice, or by rough weighing, in the case of natural ice. The amount of salt required ordinarily will vary between 170 and 250 pounds to each bunker.

Only Package Ice in Cars

Fish to be placed in the car must be in boxes or barrels, plentifully supplied with fine ice. They should be hurried into the car, that the doors may not be kept open any longer than necessary. As soon as the load is stowed, the doors should be closed and sealed, and the haul should begin as promptly as possible. No ice except that in the packages should be placed inside the car. It is a great mistake, the investigators say, to cover a load of fish with fine ice, or to place heavy ice "headers" on the barrels.

The same principle can be used with much success for the shipment of less-than-carload lots, provided the car is chilled when the trip is begun, and the trainmen close the doors promptly after each change in the lading.

Hauling fish in refrigerator cars under the conditions outlined does not harm the car by wetting the lining with fishy water to any greater extent than does ice-packed poultry or iced vegetables, and railroad officials will find value in knowledge of this fact, declare the investigators. They see no reason why fish so handled should not be loaded into refrigerator cars which, after unloading and airing, may go into other refrigerator service. Damage to refrigerator cars in fish traffic and much fish deterioration has been due to heavy meltage of ice in the fish packages, because the car was not cold enough at the beginning to reduce the meltage. This difficulty can be overcome by salting the ice in the bunkers. During the haul, the bunkers in summer time must be iced and salted every 24 hours.

SUPPLYING THRASHING OUTFITS

The unprecedented wheat crop in the United States has brought a call for more thrashing machines than manufacturers can fill, and in some States it has been difficult for wheat growers to obtain a thrashing outfit. This problem is being solved in Nebraska by the State Brotherhood of Thrashermen, which is meeting the emergency, especially in western Nebraska, by distributing machines where they are needed.

DAIRY COW NATURALLY CLEAN; MAN'S DUTY TO KEEP HER SO

Daily Baths Mean Sanitary Milk and More of It

Little Touches to Bossie's Toilet Make Her Comfortable and a Better Producer; What Dirt Means to Consumer

Sightliness and attractiveness are feminine assets which extend even to the dairy cow. Naturally she is a clean and tidy beast. Unfortunately man has been obliged to confine the dairy cow closely in stables during certain periods of the year, with the consequence that unless he daily brushes and grooms the dairy matrons, their sleek, seemly coats soon lose their gloss and luster and become densely matted with dirt and litter. For the same reasons that it pays to groom horses—greater efficiency from neat, spick-span coats—it also proves invaluable to "doll up" the dairy cow daily by vigorous application of brush and curry comb. Cow comfort—that inexplainable condition of well-being which means animal satisfaction and the economical production of the maximum flow of milk—is fostered by careful and persistent grooming during the season when the cows need such extra attention, as ordinarily during the pasture period the animals of their own accord keep themselves clean.

The enthusiastic use of the brush and currycomb, supplemented by a moist cloth, as siege guns against dust and dirt, are good mediums for increased production, according to the opinions of progressive dairymen reported to the United States Department of Agriculture. They maintain that clean coats and luxurious feelings of contentment induce increased production of milk. If you doubt the profits from grooming dairy cows, put it up to Bossie and her stable mates via the referendum-vote method.

Dirty Milk from Dirty Cows

From a sanitary standpoint, the densely matted, filthy and caked coat of the dirty cow is one of the main sources of contamination in milk. Filth dries on the body of the animal, and, unless it is removed previous to milking, a portion of it is likely to fall into the milk pail and carry undesirable bacteria with it. Hence, grooming cows is a fundamental safeguard against inferior, germ-laden milk. Where cows are groomed daily during their period of close confinement an attendant requires only about two or three minutes a cow to prepare and gloss up the animals as though for a banquet. On the other hand, it is difficult and time-consuming to clean off cows which have been kept without grooming in a dirty stable.

The commendable practice is to groom and clean the cows daily at such a time between the milking periods that there will be abundant opportunity for the dust put into circulation to settle so that it will not contaminate the milk as it is drawn from the cows. It is necessary for best results to wipe off the udder and flanks of each cow with a moist, clean cloth just before milking, in order to remove all the surface dust and dirt which has escaped the previous clean-up processes. It is recommended that dairymen exercise special care to provide plenty of material so that at all times they may use clean cloths in preparing the cows for milking, as too commonly the wiping cloth, unless carefully handled, becomes a source of contamination. It is also advisable to clip off the long hairs from the udder and flanks of each cow, as ordinarily they provide ideal places for the accummulation of dirt and filth.

Tests Show Harm of Dirt

Extensive experiments conducted by the United States Department of Agriculture at the Government farm, Beltsville, Md., show that milk drawn into a sterile pail from dirty cows contained an average of 32,677 bacteria per cubic centimeter, while milk drawn from clean cows whose udders and teats were washed immediately previous to milking had a content of only 4,947 germs per cubic centimeter. These tests were made immediately after milking. Naturally, on standing, the milk with the greatest number of bacteria would deteriorate most rapidly, due to the multiplication of the germs. Accordingly, its value as a human food product would be greatly reduced, while its introduction on the city market would be carefully scrutinized and, in some cases, punished by the health authorities.

Pride should cause every dairyman to maintain his cows in an attractive, cleanly, and sanitary condition every day in the year. In a way the appearance of the cow is an accurate measure of the owner. In the same degree that neglected fences, overrun fence rows, tumble-down buildings, and unhoused machinery typify the shiftless, ne'er-do-well farmer, dairy cows which are dirty indicate the milk farmer who does not safeguard consumers against contaminated milk.

Thoughtfully planned, conveniently arranged, and carefully constructed buildings are as essential in the country as in the city.

ANIMAL PRODUCTS IN ITALY SHOW A GENERAL SHORTAGE

Department Representatives Report on Live-Stock Situation There

Foot-and-Mouth Disease Contributes to Depletion of Cattle; 20,000 Tons of Meat Needed a Month This Year.

LIVE-STOCK SITUATION ABROAD

This is the fourth in a series of articles describing observations on the live-stock situation in foreign countries by representatives of the United States Department of Agriculture.

The situations in France, the United Kingdom, and Switzerland have been discussed in preceding articles.

Italy lacks live stock, meat, and dairy products in considerable quantities, but is planning to improve the situation as rapidly as possible. The measures adopted include importations of frozen and cured meats and, if necessary, importations of live cattle for slaughter, since the cold-storage space in Italy is limited. Restrictions on slaughter also have been in force, but their removal is being considered.

These observations are contained in a report received by the United States Department of Agriculture from its representatives, George A. Bell and Turner Wright, who made a personal study of the live-stock situation in May and June of this year.

Needs 20,000 Tons a Month

"It is estimated," the observers report, "that the needs of the country for meat from outside sources will be about 20,000 tons a month for the remainder of the present year. The policy of the Government probably will be to encourage the importation of as much of this amount as exchange and credit arrangements will permit in order to give the herds of meat animals a chance to increase.

"The most serious shortage is in cattle, the number of which not only declined during the war, but has been further reduced by a serious outbreak of foot-and-mouth disease which has existed in various parts of Italy during the past year and which is still quite prevalent in some sections."

Condensed official figures on the decline of different classes of live stock are:

Class.	Decline, 1914-18.
Cattle (including buffaloes).	920,312 head, or about 13 per cent.
Horses, asses, and mules	179,122 head, or about 8 per cent.
Swine	384,696 head, or about 14 per cent.

In sheep and goats, which are counted together in Italy, there was an estimated increase during the period stated of approximately a million head, or 7 per cent. The increase is partially accounted for by a greater acreage in grass land owing to a reduction of the area devoted to cereals and also to the smaller amount of labor required for the care of sheep and goats as compared with other animals.

The report points out, however, that the cattle situation can not be judged accurately from the percentage of decline in the number of animals, since the decrease of grown cattle was much greater than 13 per cent. Estimates for 1918 place the decrease in that class at more than 20 per cent. The damage to beef and dairy production is even greater owing to the reduction in flesh and in milk flow of cattle caused by foot-and-mouth disease and shortage of feed. To restore the herds to prewar size and condition will require, according to the report, from 5 to 7 years.

American Cattle Little Known

Cattle owners in Italy, especially in the northern part, consider the Swiss breeds best adapted for their requirements. The Simmenthal and Brown Swiss cattle are both popular. Little interest was shown in importing cattle for breeding purposes, except a small number from Switzerland. Italian farmers whose opinions were obtained had only a limited knowledge of the various breeds of cattle raised in the United States. Members of the Cooperative Producers' Society of Rome showed interest in the possibility of obtaining breeding stock from the United States. They were given information on both dairy and beef breeds and production records and were told of the French importations.

Much Condensed Milk Used

Condensed milk was on sale in stores and its liberal use was reported. Many people preferred it to fresh milk, owing to the prevalence of foot-and-mouth disease among Italian herds. The extent of sales of condensed milk in Italy, according to the report, depends on a moderate price as well as on suitable advertising. Fresh milk was selling in Rome for 1 lire a liter (equivalent to about 18 cents a quart). The observers report that Italians would do without milk before they would pay much more than that price. Although before the war Italy exported a large quantity of cheese, at present that trade is very small.

Beef Difficult to Obtain

Meats of all kinds, especially beef, were obtainable with difficulty. Stores, restaurants, and hotels had only limited qualities. Beef was offered at only 2 out of about 15 shops visited in Rome on May 29. That seen was of poor quality. The number of cattle permitted to be used for civilian consumption has been restricted to a maximum of about 50,000 a month. The manner in which cattle slaughtered in Italy have been divided between the army and the civilian population is strikingly shown in the following figures supplied by the Italian Government:

Cattle Slaughtered

	For Army.	For civilians.
1915	500,000	1,400,000
1918	810,000	650,000

Although at present there is considerable demand among the poor classes in Italy for horse meat, the permanency of any trade in that product from other countries is questioned because of natural prejudice against horse meat and also against frozen meat in general.

Poultry Situation Encouraging

Supplies of chickens and eggs in Italy were observed to be reasonably large, and prices for these products both in restaurants and at the markets were noticeably lower than in France. Before the war Italy exported large numbers of chickens and eggs. Eggs and poultry were still being exported from Italy early this year, although in reduced quantities.

NEW OPEN SEASON FOR DOVES

The open season for hunting mourning doves in South Carolina has been changed by an amendment to the migratory bird treaty act regulations, announces the United States Department of Agriculture. The amendment fixes the period during which mourning doves may be killed in South Carolina from October 16 to January 31, both days inclusive, whereas the Federal open season last year was from September 16 to December 31, inclusive. The new season, beginning October 16, was not adopted in time to have the correct dates noted on the State hunting licenses, which incorrectly show the season to begin one month earlier. The Federal law and regulations supersede all State laws inconsistent therewith, and the State hunting licenses do not authorize persons to hunt mourning doves or other migratory birds in violation of the Federal law.

Where do you live? The best place is Easy Street. You get there through Safety Lane. Take the War Savings Stamps Road.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FOREIGN LIVE-STOCK WORK CALLS FOR EFFORTS IN U. S.

The need to improve live stock in the United States as a means of increasing efficiency in production and meeting competition from abroad is apparent from efforts which foreign countries already have made along similar lines. According to reports received by the United States Department of Agriculture through consular channels, the federal government of Brazil is now taking special measures to encourage breeders of sheep and goats. The assistance includes:

"The payment of an amount equal to one-third of the cost of purchase and freight of rams and he-goats purchased abroad for the purpose of reproduction up to 25 head of each species and sex (50 animals) per individual breeder as regards blood stock."

A moderate premium is also paid on purebred sheep of both sexes or on purebred billy goats imported in excess of the number stipulated up to 1,000 head to a breeder.

To obtain Government aid breeders must prove, as the principal requirements: The rservation of at least 1 hectare (2½ acres) to four animals, that the pasture is abundant, suitable, supplied with running water, and free from thorny plants likely to injure the wool. Adequate barns and buildings, sheep dips, etc., must be provided, and the animals imported must be accompanied by a certificate of health.

The purpose of the Federal aid, according to the reports, is to utilize more fully the vast areas available for breeding sheep and goats, improvement of breeds existing, and the economic production of meat, wool, and skins.

The corresponding effort in live-stock improvement in the United States is the "Better sire—better stock" campaign which the United States Department of Agriculture has announced will begin October 1, and in which all live-stock owners are invited to join.

NURSERY STOCK, PLANTS, SEEDS MAY ENTER UNDER PERMITS

Importations of nursery stock, other plants and seeds from contiguous countries, the entry of which will not be attended by serious risk to the agriculture, horticulture, and floriculture of the United States, are permitted by an amendment to the plant quarantine act, according to an announcement just made by the United States Department of Agriculture. The amendment, known as "No. 3 to Regulations Supplemental to Quarantine No. 37," is to be effective August 16, 1919. Under it the Secretary of Agriculture may issue permits, when applications are made, authorizing the entry into the United States of such nursery stock, other plants and seeds when they are free from disease and insect pests, and it is known that their entry will not be attended by serious risk.

Importations under this new regulation are limited to specific classes of nursery stock, plants, and seeds which can be considered as peculiar to such contiguous countries, and are not mere reproductions of imported stock from foreign countries, and which are not available in sufficient quantities in the United States. It does not apply to plants and seeds governed by special quarantines and other restrictive orders other than Quarantine No. 37, which is now in force.

In addition to the certificate as to freedom of pests required in connection with all plant importations, the invoice covering the material offered for entry under this regulation must be accompanied by a certificate of a duly authorized official of the country of origin, stating that the material has been produced or grown in the country from which it is proposed to be exported.

MAY EXTEND QUARANTINE ON EUROPEAN CORN BORER

A public hearing to consider the advisability of quarantining the States of Massachusets and New Hampshire on account of the European corn borer was held by the Federal Horticultural Board in the Statehouse, Boston, Mass., August 15. This dangerous insect continues to spread at an alarming rate in portions of Massachusetts and New Hampshire beyond the limits of the quarantine established by the Secretary of Agriculture on October 1, 1918.

Since the promulgation of that quarantine, further investigations of the European corn borer conducted by the specialists of the United States Department of Agriculture have developed the fact that in addition to corn fodder, corn stalks, green sweet corn, roasting ears, corn on the cob, and corn cobs, which are listed in the present quarantine, many other plants are subject to infestation by this insect. It has been found that it feeds on popcorn, oats straw, rye straw, and such cultivated garden and flower plants as celery, Swiss chard, green or string beans (in the pod), beets with top, spinach, turnip tops, rhubarb, entire plants of geraniums and cut flowers of dahlias, gladioli, and chrysanthemum.

CLARENCE OUSLEY RESIGNS AS ASSISTANT SECRETARY

Clarence Ousley, Assistant Secretary of Agriculture, has resigned, and he left the Department of Agriculture July 31. He gave as his reasons that he had finished the work for which he came to the Department during the war and that he could not afford longer to hold public office.

In transmitting the resignation to the President, Secretary Houston expressed deep regret that Mr. Ousley felt obliged to leave the Department and stated that he was constrained to recommend the acceptance of the resignation only in deference to Mr. Ousley's wishes. The retiring Assistant Secretary has made business connections in the East and will remain in Washington.

At the request of Secretary Houston, Mr. Ousley came to the Department of Agriculture in the summer of 1917 to assist in the war activities of the Department. At that time he was State Director of Extension in Texas, and he has been on leave from that position until recently, when he terminated that connection also. During the war he handled, under the Secretary's direction, a number of the most important war activities of the Department, including farm labor problems and the supervision of informational campaigns to increase food production.

Mites and lice frequently sap the vitality of the fowl and prevent growth or lessen the egg production. A thorough cleaning of the house, regular applications of disinfectants to the roosts and nests, and a frequent dusting of the fowls will control these pests.

Great Care Necessary in Precooling Poultry Cars; Simple Way to Safety

Scrupulous care in precooling a refrigerator car for shipping dressed poultry, always a matter of importance, is doubly so now, in the opinion of food-research experts of the United States Department of Agriculture. The greater necessity for care comes, in the first place, of the fact that there is a nation-wide ice shortage. The second important element is that, following the stress of war-time transportation, the refrigerator equipment of the country is in a run-down condition. The car should be carefully examined, the experts say, to see that it admits not even a pin point of light. Then it should be tested and, if it falls short of standard, there should be no hesitation about rejecting it and calling on the railroad agent for a car that will meet the requirements. Extreme care, the experts believe, is essential just now for the preservation of poultry in transit, and the chief of the department's Food Research Laboratory has just issued the following definite information as to how satisfactory results are to be attained.

Select Car Day Before Loading

"When the refrigerator car is set for icing, enter it and with doors and hatches tightly closed look carefully for any crack or point of daylight. The car should be absolutely black with not a pin point of light anywhere. If there are distinct cracks around the doors or hatches, the car will not maintain sufficiently low temperature and should not be iced for the hauling of dressed poultry or any other commodity requiring ice and salt refrigeration. Be sure also that the drainpipes are open and in good working order.

"The selected car should be set for icing at least 24 hours before it is to be loaded. Its bunkers should then be filled three-quarters full with finely broken ice; that is, no piece should be larger than a man's fist. When the bunkers are three-quarters full, tamp the ice down well so that all cracks and crannies are filled. Then add one-quarter of the calculated amount of salt on the 12 per cent basis. For instance, if the bunker holds 5,000 pounds of ice, when three-quarters full it will contain 3,750 pounds. On top of this amount of ice scatter 150 pounds of coarse gray rock salt. Mix this salt very lightly with the top ice and directly on top of it place more crushed ice until the bunker is full. Then add the remainder of the calculated amount of salt, which, in this case, would be 450 pounds. Mix it very lightly with the fine ice so that the salt does not penetrate into the mass of ice more than 4 or 5 inches; level the surface and quickly close the hatches.

Right Temperature Is 34°

"With both bunkers so iced and salted, the car should stand for 24 hours. Then, in order to make sure that the temperature is right for loading, a man provided with a thermometer should enter as quickly as possible by opening one side of one door, which should be tightly closed immediately. The man should stand midway between the doors holding the thermometer about 4 feet from the floor until the mercury has responded to the car temperature, which ordinarily is accomplished in from three to five minutes, depending on the quality of the thermometer. The temperature of the car at this point should not be above 34° F. If it is more than 38° at this point, it is dangerous to load the car for a haul requiring intensive refrigeration. Unless the shipper is willing to take chances on the condition in which his load will arrive at the market, he should communicate with the railroad agent and request a car which is able to refrigerate the dressed poultry properly.

"All refrigerator cars should be provided with a floor rack 4 inches in the clear, built of lengthwise stringers made from 2 by 4 lumber and crosswise slats made from 1 by 3 lumber, with 1½-inch spaces between. These crosswise slats are nailed to the lengthwise stringers. They do not interfere with trucking the load into the car. They should extend across the doorway, since it is this part of the car which is hardest to refrigerate and where air circulation is most needed. All railroad-owned refrigerators as rapidly as possible are being equipped with racks which are fastened to the side walls so that they can be turned back for cleaning."

Uruguay Breeders Purchase Purebreds in United States

Four prominent live-stock breeders from Uruguay recently visited this country and purchased a number of purebred animals for shipment to South America.

The visitors were: R. Pareja Reissig, inspector for all live-stock record associations in Uruguay; A. Terra Arocena; B. Fernandez; and H. Ferdandez, all well-known breeders of Uruguay. These men, accompanied by L. B. Burk, of the Bureau of Markets, United States Department of Agriculture, visited 65 leading Shorthorn, Hereford, and Angus herds in Wisconsin, Iowa, Kansas, Missouri, Illinois, Indiana, Kentucky, and Ohio. They purchased for export to Uruguay 21 Herefords, including 6 bulls and 15 heifers; 14 Shorthorns—3 bulls and 11 heifers; 3 Angus—2 bulls and 1 heifer; and 6 Holsteins. The ages of these animals ranged from 7 to 22 months, the buyers preferring young stock because certain sections, comprising about one-third of Uruguay, are infested with the Texas fever tick, and young animals are better able to resist attacks of fever. However, the Uruguay ranchmen are practicing dipping against the tick as is done in the United States. The Hereford bull "Woodford 30th" was purchased from E. H. Taylor, of Frankfort, Ky., for the president of the Society Rurale of Uruguay, the price paid being $7,000.

The visitors stated that they were highly pleased with their trip and with the quality of the cattle they saw. Uruguay has been importing about 350 Hereford and 150 Shorthorn bulls from England each year, and the visitors stated emphatically that since seeing American herds they believe American cattle are superior to the English-bred cattle. However, in order to convince the breeders of Uruguay of this fact, they said it was necessary that they take back with them animals that will demonstrate the quality of American cattle at their leading shows.

VENEREAL "CURES" SEIZED FOR FRAUDULENT CLAIMS

By order of the Federal courts more than 450 seizures have been made recently in different parts of the United States of so-called cures for venereal diseases. They were made on information furnished by officials of the United States Department of Agriculture through its Bureau of Chemistry. A campaign to end the false labeling of such preparations is being conducted by the officials charged with enforcing the Federal Food and Drugs Act.

The goods seized include a great variety of compounds. Some of the labels bear the claim of the manufacturer that the contents are sure cures for venereal diseases. Some even contain statements that cures will be effected within definite periods varying from three days to a few weeks. In others indirect statements, suggestive names, or deceptive devices are craftily used to make it appear that

the use of the preparation will be followed by a cure of the disease.

Fraudulent Labeling Charged

In all the seizure actions the Government alleged the preparations to be falsely and fraudulently labeled, because the ingredients could not produce the results claimed on the labels.

The officials state that such preparations are sold largely because of plausible but false claims regarding their curative effect. Many sufferers with dangerous contagious venereal diseases are led to believe that cures will be effected by these preparations, and adequate treatment under competent medical supervision is neglected until permanent injury to health and even danger to life has resulted. Thus is created one of the greatest obstacles to the proper control and eradication by health officials of venereal diseases. In many instances had such sufferers secured competent advice, early and complete cures might have been effected.

Self-treatment with worthless concoctions causes not only continued suffering but sometimes permanent injury to the unfortunate victims and makes of them a menace to the public health because of the extreme danger of others contracting the disease from them.

Action under the Federal Food and Drugs Act in reference to venereal-disease preparations coming under its jurisdiction and sold under proprietary names is limited by the terms of the act largely to the prevention of false or fraudulent labeling. The act does not prevent the sale of any mixture as medicine, however worthless it may be, if there is directly or indirectly no false or fraudulent labeling. The officials in charge of the enforcement of the act are of the opinion, however, that by causing the elimination of false labeling, upon which the sale of such preparations largely depends, the evils and dangers resulting from their indiscriminate use can be greatly checked and substantial aid rendered to public-health officials.

Much soil fertility is lost every winter by soil washing or erosion. Put a stop to it by keeping the hilly lands in sod, planting a cover crop, under-drainage, filling the gullies with brush, etc.

Straw is too valuable to be allowed to remain unused. Fresh oat straw, as well as wheat straw, can be used as a roughage in wintering stock. It is also advisable to use it liberally as bedding for farm animals as it adds to their comfort and absorbs the liquid part of the manure, which is the most valuable portion.

FEED SOWS WELL DURING FALL FARROWING SEASON

Shelter and Good Bedding Essential to Success with Fall Farrowed Litters

If Proper Precautions Are Observed as Much Profit May Be Realized from Autumn as from Spring Pigs

Ordinarily the fall crop of pigs is farrowed between the middle of August and the 10th of October. It is highly important that sows be well fed and carefully tended during this time, the care and management of the dams being practically the same as that followed when the spring litters are farrowed. Similarly, fall pigs, after they are weaned, should be treated the same as spring pigs, except that in many parts of the country fall pigs do not have access to green forage crops.

Young Pigs Require Special Attention

In the northern and colder locations, special attention should be devoted to housing and bedding the porkers, particularly the young pigs. These youngsters should never be allowed to sleep in sheds or pens where they are exposed to rain or snow, nor should they be allowed to lie on damp bedding. Supplying the fall pigs with plenty of dry, bright, clean bedding frequently—once every two or three days if necessary—to keep the nests and beds dry and comfortable is a prerequisite of successful hog management. This point can not be overemphasized. The young pigs delight in a warm, dry nest, and the practical hog raiser who caters to this desire is the man who usually is able to make the statement, backed up with actual figures, that there is money in producing pork.

The great danger which results from allowing the pigs to sleep in damp bedding is that the next morning they go out into the cold air, often covered with steam, and consequently are likely to contract pneumonia or other serious ailments. Dry bedding, frequent changes of litter, well-built houses, and plenty of feed of the right character are essential where the producer seeks a 100 per cent pig-raising record. Where these conditions are realized, and particularly where the fall pigs are kept dry, sheltered, and well fed, it is as profitable to raise autumn porkers as it is to produce spring pigs, despite the common belief to the contrary.

FEED DAMAGED GRAIN CAREFULLY

Although it is good management to allow poultry to rustle about in grain fields and stack yards after the grain crop has been stacked or thrashed, it is essential to exercise particular care that the fowl are not injured by feeding damaged grain. Specialists of the United States Department of Agriculture assert that where damaged grain is fed in limited amounts to the flock which is on free range, the possibility of serious injury is reduced to a minimum. On the other hand, they state that it is advisable not to feed the damaged grain—and never to use this material if it is moldy or musty—in anything but very small amounts where the fowl are closely confined all the time. There is an inexplainable something about the range which the birds have as well as the waste products which they utilize that apparently keeps them healthy, so that they are able to handle small amounts of grain which are not too seriously damaged. It is especially necessary to watch corn and corn meal, as these feeds are inclined to spoil rather easily.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 16, 1919:

Range Management on the National Forests. Department Bulletin 790.

Vacation Land—The National Forests in Oregon. Department Circular 4.

Diseases and Insects of the Home Garden. Department Circular 35.

The Club Member's Home Vegetable Garden. Department Circular 48.

Suggested Improvements in Methods of Selling Cotton. Department Circular 56.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

JUVENILE CLUB WORK FOR GUAM

Boys and girls in Guam, that far-off insular possession of the United States, are to have club work similar to that of the juvenile citizens in this country. Scientific agricultural methods are taught the boys and girls in the clubs. That country needs better farming methods and the best way to reach the adults seems to be through the young people. The work is being done under the immediate direction of the agricultural experiment station of Guam in connection with the schools of the island. Use is being made of very simple demonstrations, leaflets, posters, exhibits, and illustrative material of various kinds. A former leader of a boys' and girls' club in Oklahoma has gone to the island to organize the extension work.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

"Minor Troubles" of a County Agent.

A county agent in one of the Eastern States believes in diversified activities. He reports as follows for one month's work: "Burnt up 90 gallons of gasoline, 5 quarts of oil, had 6 punctures and one blow-out. Trailer broke away and upset load; pig fell out of the car and was caught with difficulty, afterwards jumped from sty and was run over by an auto. Buried three pigs with all the profits and lost $28 besides. Tore best trousers getting over pasture fence; broke watch crystal loading corn planter; but outside of a few minor troubles had a very satisfactory month's work."

Department Has New Stallion Farm.

A new stallion farm, the only one of its kind in the country, was established by the United States Department of Agriculture in cooperation with the Wyoming Agricultural College, at Buffalo, Wyo., the 1st of July. It is to be known as the United States-Wyoming Horse Breeding Station, where the work that has been done for the past 15 years by the Department in cooperation with the Colorado Agricultural College will be continued. The object of the work at this station will be to produce high-class stallions suitable for the production of utility horses adapted to western range and farm conditions. Stallions at this station are available for use by mare owners in the community, and from time to time they will be sent for service to different parts of Wyoming and Colorado. Stallions developed for the range weight from 1,200 to 1,400 pounds.

Club Members Make Promises Good.

Hundreds of thousands of dollars have been lent to club boys and girls on their personal notes by southern bankers, whose confidence has not been betrayed in any known instance.

A banking system in Mississippi, through its 15 banks, last year lent between $12,000 and $15,000 to the boy and girl club members of the State. This spring the president of this system told the State boys' club agent that out of these loans, a thousand in number, there had not been a single piece of bad paper. Many of the boys were the sons of men who could not get credit at a bank.

The boys and girls in Mississippi borrowed, in all, during the year 1918, $40,000 from the banks to purchase seed corn, pure-bred pigs, calves, and other live stock, and, so far as is known, every loan has been repaid. The banks in Kansas lent the juvenile club members of that State $75,000 last year with which to carry on their club work, and were ready to loan more if it had been needed. The members of the boys' and girls' clubs, which are organized by the Department of Agriculture and the State colleges, are taught by their leaders to look upon these obligations as sacred and binding.

More Home Demonstration Courses.

The colleges and universities of the South are realizing the influence as well as the need of the county and home demonstration agents in the various States. The agricultural colleges and women's colleges now directly cooperating in the work give courses for special training of county agricultural and home demonstration agents. The first college in the United States, outside of the State agricultural and other cooperating colleges, to open its doors to the home demonstration agents and to try to supply them with needed instruction was the George Peabody College for Teachers, at Nashville, Tenn. This year many other schools have followed its example, and a number of leading colleges and universities throughout the Southern States are now offering four-year courses especially prepared for the needs of the agents. Other schools have special short courses for the demonstration agents during the periods when they can best be spared from their counties. Short courses as offered by colleges do much to keep the workers in the field in touch with the results of new investigations which will benefit them in their line of work.

Communities Determine Kind of Club.

As extension work is developing, the boys' and girls' club work should fit in with the program of the county farm bureau, the extension directors of nine New England and Eastern States decided at a recent conference in Boston. The extension directors who were present seemed to be agreed that the boys' and girls' club work as contemplated in the Smith-Lever act must be conducted primarily as an extension enterprise having in view, in the first instance, the actual improvement of agriculture, home economics, and general rural conditions in the counties where it is taken up. The community itself is functioning to an increasing degree in determining what club work should be undertaken, what relations established, and who should act as local leaders of the work.

A satisfactory agreement has been drawn up with the educational system of the State of New Jersey covering cooperation with the club work. Likewise Vermont and New York each has a memorandum of understanding on club work with the State Board of Education, which is working out satisfactorily. In Massachusetts, it is stated that 50 per cent of the 300 local leaders employed in boys' and girls' club work were other than teachers. Massachusetts has 12 county boys' and girls' club leaders, and New York has 18 at the present time. Many of the States reported farmers, bankers, ministers, women, and like agents as local club leaders. All of the States represented in the conference look forward to a county club leader in each county of the State.

Heavy Horses Still Scarce.

While there is a surplus of light horses on the farms of the United States, there is still a notable deficiency in heavy, desirable draft horses, say horsemen of the United States Department of Agriculture. Last year, they say, there was a tremendous decrease in mares bred, but during the spring of 1919 a very large percentage of good mares were bred, which is expected largely to meet the future demand for horses of the better type.

Fine Stallion on Government Farm.

A standard-bred stallion, Harvest Aid, 63908, an animal of the very highest breeding type, has recently been purchased by the United States Department of Agriculture and placed at the Government's new horse-breeding station at Buffalo, Wyo. Work at this station is being carried on in cooperation with the State of Wyoming, the object being to develop utility horses especially adapted to western range and farm conditions. Harvest Aid is by the champion trotting stallion The Harvester, and his dam is Santos Maid, a mare which holds the trotting

record of 2.08¾, and a daughter of Peter the Great, the leading sire of speed in America. Harvest Aid is an animal of great stamina, good size and conformation, and while he was selected on his merits as an individual, the horsemen of the department say they are extremely fortunate in getting such a well-bred animal. It is not the purpose at the horse-breeding station to develop speed animals, but it is well understood that a good stallion from a family noted for its speed is highly desirable for the production of active utility horses.

Department Prepares Sheep Exhibits.

Educational exhibits for sheep raisers showing models of equipment, such as barns, sheds, fences, feeding troughs, etc., are being furnished by the Division of Animal Husbandry, United States Department of Agriculture, to cooperative sheep specialists in various States for use at county fairs and at gatherings of farmers. The object of the exhibits is to demonstrate in as practical a way as possible the best methods of managing sheep. Large illustrations are included, showing specimens of the different breeds and types of sheep. Samples of wool, illustrating the different grades, are also included in each exhibit.

Educational Exhibits at Poultry Shows.

The educational exhibits at both the Boston and New York poultry shows this year will be under the supervision of Harry M. Lamon, in charge of poultry investigations, United States Department of Agriculture, who is now making up a program that will be an important feature at each of these big annual poultry events. There will be afternoon and evening sessions on each day of the shows, and demonstrations in judging poultry, selecting nonlayers from layers, and other practical work, with addresses by leading poultry breeders and experts. More than 20,000 poultry bulletins issued by the department were distributed at the New York show last year. The Boston show will be held this year from December 30 to January 3, and the New York show, in Madison Square Garden, January 20 to 25.

Pineapple Growers Organize.

It is not generally known that pineapples can be grown in the United States, but in St. Lucie County, Fla., the industry has developed to such a degree that the growers have formed an association. One of the purposes of the organization is to carry on experiments to determine, if possible, the cause of pineapple wilt. At the first meeting of the organization $500 was subscribed by the members, and it is aimed to raise at least $1,500 for this work.

Endless-Chain Pig Club.

Twenty pigs were distributed recently to the members of the boys' and girls' pig club of Whitley County, Ind., to form the second link in their endless-chain pig club. One of the conditions under which a pig club member in the county receives a club pig is that the member shall return two pigs from the original gilt. These pigs are then distributed to new club members and thus the membership increases.

Change Season for Shooting Doves.

Recent amendments to the regulations for enforcing the migratory-bird treaty act prohibit the shooting of migratory birds from boats or any floating device towed by sailboats or motor boats. This change in the law has been made in order to check the activities of sportsmen who, by the use of towed floating devices, have evaded previous requirements which forbade the shooting of migratory birds from motor boats or sailboats.

In addition, the open season for shooting doves has been changed in South Carolina, Georgia, Florida, and Alabama from the period between September 16 and December 31 to the period between October 16 and January 31, both days inclusive. Furthermore, an open season for shooting doves covering the period from December 1 to December 15, inclusive, has been established in Ohio, Indiana, Arkansas, Kansas, Utah, and Nebraska. However, in some of these latter States the local sportsmen will not be able to derive the benefits of this Federal open season, due to the fact that State laws which are operative in their respective territories prohibit the killing of mourning doves during a part or all of the Federal open season. For example, the Federal law makes the dove-shooting season in Colorado open September 1 and terminate December 15, while the State law prohibits the shooting of doves from September 2 to August 14, inclusive. As a consequence, the only time in which sportsmen can legally shoot doves in Colorado without violating either Federal or State laws is the single day, September 1.

The changes in the regulations also eliminate the reference to white-winged doves, because these doves do not migrate between the United States and Canada and hence are not protected by the treaty act. All the changes in the dove-shooting season have been made at the request of the State game commissioners and sportsmen in the States affected. The new dates will be satisfactory to the hunters and yet will serve to give the doves adequate protection.

Dairymen Ride to Real Success On Backs of Good Producers

Dairymen in the United States are divided into three classes—those who ultimately fail and abandon the business; those who eke out a limited existence, and those who succeed. Invariably, the success of the progressive dairyman is principally due to the quality of his cows. He climbs to freedom from financial worry on the backs of big producers.

It is impossible for the average dairy cow of the United States even to approach the remarkable production record of Duchess Skylark Ormsby, who produced in a year 1,205.09 pounds of butterfat, equivalent to three-fourths of a ton of butter. But it is possible for dairymen, the country over, to double the present production of their herds. To increase the production of the average dairy cow from 160 to 320 pounds of butterfat a year would not be difficult, according to dairy experts of the United States Department of Agriculture, and would increase net profits out of proportion to production costs.

This should be the aim of every progressive dairy farmer. He would eliminate the low producers from his herd and feed the remainder according to known production. He should improve the foundation stock with the idea of making the daughters yield as much more milk than their dams as possible. This practice in a few generations would greatly increase production, decrease the cost of feed, and add much to the profit and pleasures of dairy farming.

MANY PRIZES FOR CLUB WORKERS

Boys and girls in Nebraska clubs who faithfully carry on their club work will be well rewarded this year. Nearly 100 prizes are being offered the winners in the boys' and girls' club work, and in addition several hundred dollars will be distributed among boys' and girls' club demonstration teams at the Nebraska State fair. To encourage the young people to complete their work, prizes will go only to those completing their project and filing a final report. Prizes will be offered demonstration teams in corn, pig, garden, sewing, cooking, baking, rabbit and chicken club work, and the winner of first place at the State fair, regardless of the project, will be rewarded with all expenses to the Interstate Fair at Sioux City in September.

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HIGH ACID PHOSPHATE PRICES NOT JUSTIFIED BY SHORTAGE

Department Notes Absence of Anticipated Reduction

Will Require Manufacturers to Base Prices On Actual Cost of Production; Acts to Relieve Scarcity of Cars

The United States Department of Agriculture has received numerous complaints regarding the price of acid phosphate as compared with the prices of mixed fertilizers. The price quoted by manufacturers during the spring of 1919 to dealers or individuals ordering 30 tons or more was $24 a ton f. o. b. Baltimore, Philadelphia, and Carteret. The price asked for the fall trade is $22.50 a ton.

It will be recalled that the department on June 7 issued a statement to the effect that farmers should be able to obtain mixed fertilizers in the fall of 1919 at prices approximately 30 per cent lower than those which prevailed in the spring. This statement was based upon information that had been obtained from manufacturers, but it was expressly stated that the price of acid phosphate was being further investigated. Obviously, the price of this material has not decreased by 30 per cent, and the department, in letters to manufacturers, has expressed the view that the prices quoted above are too high.

It has also advised all acid phosphate manufacturers that in the future it will require them to base the price of straight acid phosphate, as a separate commodity, on the actual cost of the materials of manufacture and sale, plus a reasonable profit, and that the cost of manufacturing mixed goods must not be prorated on that portion of the acid phosphate which is sold as such.

Since the prices of acid phosphate were indicated to the department by the fertilizer manufacturers, the prices of crude acid phosphate have advanced to such a point that the dry mixers, who buy the crude material, crush, mill, screen, and bag it, complain that they can not handle it with a profit at the price they had agreed to sell it for. Strikes in Florida and car shortages in both the Florida and Tennessee fields have combined to reduce production and shipments. The department has laid the situation fully before the Railroad Administration and has urged that sufficient cars be made available for fertilizer deliveries in the interest of crop production.

Must Justify Advances

It has also notified the phosphate miners and the acid phosphate manufacturers that the present prices of rock phosphate, or of acid phosphate, must not be advanced without submitting the proposed increases to the department, accompanied by specific data showing any real and unavoidable increase that may have occurred in the costs of production. Such increase in costs, in the opinion of the department, would be the only pos-

(*Continued on page 10.*)

CONTINUED DEMAND FOR FOOD PRODUCTS LIKELY

Continued strong demands for cereals and live-stock products are indicated by all the information in its hands, says the United States Department of Agriculture in reply to a telegraphic inquiry from G. I. Christie, director of the Indiana State Food Committee.

"The State Food Committee has considered problems and feels that farmers should plan to sow a normal acreage of wheat and rye," said the Indiana inquiry. "Committee desires a statement from you on desirable plan of procedure and what lines farmers should follow."

The Department of Agriculture replied that while the exact world food conditions for 1920 can not be forecast with accuracy at this time it is considered sound policy to maintain normal acreages of fall wheat and rye on Middle West lands adapted to these crops, and that the need is for well balanced, sane, and efficient production of staples, the demand for which is reasonably certain, judging from existing domestic and foreign conditions.

"It is important," says the Department of Agriculture, "to restore meadows and pastures broken up during the war emergency, and to reestablish crop rotations to prevent depletion of soil fertility and afford sound basis for maintaining well-balanced live-stock production. The department suggests to farmers the advisability of maintaining their production of cereals, forage crops, and live stock on the basis of their accumulated experience with these, avoiding speculative plunging in unbalanced production, which involves undue climatic and price hazards."

GOOD GRADES GIVEN WHEAT FOR INTERSTATE SHIPMENT

Charges of Grading Down Not Borne Out by Records

Farmers Dissatisfied with Grades Have Right of Appeal to U. S. Grain Corporation; Machinery Provided to Handle Appeals

Charges that the new winter wheat crop is being graded down so that it brings large discounts from the Government guaranteed price for No. 1 Hard Winter are not borne out by figures on wheat receipts at western markets, according to licensed grain inspectors' reports received by the Bureau of Markets, United States Department of Agriculture.

High Grades Given

These reports show that in the Kansas City district of Federal grain supervision 77.7 per cent of the Hard Red Winter wheat inspected up to August 9 graded No. 3 or better. At the Oklahoma City district of Federal grain supervision 91.2 per cent of the wheat inspected up to August 11 graded No. 3 or better. Figures from the Wichita district of Federal grain supervision show 71 per cent of the wheat graded up to August 11 No. 3 or better. At the Omaha district of Federal grain supervision 83.3 per cent of the wheat up to August 13 graded No. 3 or better, while at St. Louis 88.5 per cent of the hard winter wheat graded No. 3 or better up to July 26.

The inspection points in these districts are at Wichita, Arkansas City, Coffeyville, Cherryvale, Hutchinson, Wellington, Winfield, Lawrence, Leavenworth, Salina, Topeka, Abilene, Atchison, Clay Center,

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and Kansas City, Kans.; Oklahoma City and Enid, Okla.; Kansas City, St. Louis, and St. Joseph, Mo.; Des Moines, Missouri Valley, and Sioux City, Iowa; and Fremont, Lincoln, Omaha, and Superior, Nebr.

Farmer May Appeal

These figures do not cover gradings at country points, where licensed inspectors are not located, says the Department of Agriculture. The Grain Corporation has required Federal standards to be applied on all its transactions, and has provided machinery to handle appeals on grades assigned by country buyers. If any farmer is dissatisfied with the grades assigned to his wheat, at a point at which no licensed inspector is located, he has the right of appeal to the Grain Corporation. It is pointed out by officials that the complaints on wheat grading are primarily due to abnormal marketing conditions. In support of this view, attention is directed to the fact that, in the case of shelled corn and oats, which are not handled under fixed prices, information received by the department indicates that the Federal grades are giving general satisfaction.

MORE PURE-FOOD PROSECUTIONS

If the interest of city and State food and drug control officials in the Federal food and drugs acts as a supplement to similar city and State laws is to be measured by the number of cases they have instituted under this act, either independently of or in cooperation with the United States Department of Agriculture, their interest has increased greatly in the last four years.

The number of prosecutions for violations of the Federal food and drugs act begun by State and city officials during the fiscal year 1919 was 202. During the fiscal year 1916 only 35 such prosecutions were begun by such officials.

FINDING AGE BY TEETH

Farmers' Bulletin 1066, just published by the United States Department of Agriculture, tells how to ascertain by their teeth the age of cattle from calfhood to about 12 years of age. The bulletin is illustrated with six drawings, which will aid the stock farmer in judging the age of his own animals or of those he may desire to purchase. It is for free distribution.

In localities where it has become established the currant maggot, an insect for which there is no satisfactory method of control, practically prohibits the successful growing of both currants and gooseberries.

RELIEF GIVEN TO FARMERS IN DRY PART OF NORTHWEST

Many Cattle Shipped Out to Good Grazing Ground

Federal Government and States Work in Cooperation; 20 Per Cent of 100,000 Farms Fail to Make a Crop

Stockmen and farmers in the seriously drought-stricken area of Montana and adjoining States, where feed crops and pastures have failed for lack of rainfall, are being given some relief through well-organized and cooperative efforts of the United States Department of Agriculture and State officials. The department representatives designated to investigate conditions state that of the 100,000 farmers in Montana, 20 per cent have failed to make a crop this year, and thousands of stockmen are taking advantage of the reduced freight rates offered by railroads in that territory to ship their cattle to parts of the United States where feed and pasture are available. One of the most recent developments in the relief work is the establishment of the department's emergency office at Billings, Mont., with Prof. C. N. Arnett as the department western field agent in charge.

It is estimated that 600,000 to 700,000 cattle will be shipped out of the State. Approximately 50 per cent of these represent the normal shipment. Stockmen are being advised to dispose of their steers, old fat cows, yearlings and 2-year-old steers and heifers where necessary, keeping at home cows with calves. No figures are available regarding the aggregate number of sheep to be moved out, but it is believed that sheep will suffer less than cattle.

Area of Drought

The drought area includes all of the State of Montana, portions of Idaho, the northern two-thirds of Wyoming, the northwestern counties of South Dakota, and the western half of North Dakota. Not only has there been an unusually light precipitation in most of this area during the growing season for three years, but the snowfall in the mountains last winter was below normal, the temperatures since the first of April, 1919, have been much above normal, and, therefore, what snow there was in the mountains melted rapidly and ran off sooner than usual, making a shortage of water for irrigating purposes and for stock.

Records of precipitation at the Havre Experiment Station, kept since 1880, show that until 1918 there have never been two years in succession where there was not sufficient rainfall during the growing season to make a crop. It was expected that this was a fairly safe indication that there would be sufficient rain this year, but this proved not to be true, as rainfall was very short. However, in spite of the dry weather, an 80-acre field of wheat at this station will yield between 10 and 12 bushels to the acre. Corn also at this place, while short and without grain, will furnish 200 to 300 pounds of dry feed to the acre.

Relief Measures Taken

Promptly on the designation of the representatives previously mentioned, the department called a conference at St. Paul, which was attended by agricultural officials from Washington, D. C., and from the States concerned by representatives of landowners' associations and by every general freight agent of the railroads serving the drought area. At this conference the railroad officials made recommendations which have since gone into effect establishing reduced rates on live stock out and back, which amount to full rate out and one-third of the full rate back, and rates on feed from Mississippi River points amounting to about 50 per cent of the usual charges.

Offices have been established in several larger cities in the Central States through the cooperation of Federal and State officials. These offices furnish stockmen in the drought area with lists of buyers who want feeder animals, together with information concerning available pasture lands on which breeding stock may be kept until the emergency has passed. Such offices have been established at South St. Paul, Omaha, and Chicago.

DOVE SEASON OPENING

In the issue of the Weekly News Letter for August 27 this statement was made in an item under the head, "Change Season for Shooting Doves": "Furthermore, an open season for shooting doves covering the period from December 1 to December 15, inclusive, has been established in Ohio, Indiana, Arkansas, Kansas, Utah, and Nebraska." The date for the beginning of the period should have been September 1, instead of December 1.

Cull out and prepare for market all fowls, old or young, which appear weak, slow, or dull; fowls with drooping tails, rough plumage, or crow-shaped heads; all scrubs except those which have laying points; all hens which molt early; and all males except those strong, vigorous, and of a pure type desired for breeding.

TEXAS SPEEDS UP ATTACK AGAINST CATTLE-FEVER TICK

Cattle Dippings in July Reach Record Figure

Brazos County Votes for Eradication; Twenty Northern Counties Are Working for Release Soon from Federal Quarantine

The attack against the cattle-fever tick has reached unprecedented proportions in Texas. That is shown by reports to the Bureau of Animal Industry of the United States Department of Agriculture, which is cooperating with State and local officials to drive out the insect enemy of the live-stock industry.

Following are some of the straws that show how the wind is blowing against the tick:

Cattle dippings in July reached a total of 2,203,715 in Texas—the greatest number ever recorded in any month since the campaign began.

Brazos County has voted in favor of county-wide tick eradication. This fact is doubly significant, because Brazos County is in the third of the three zones set up by the State tick-eradication law, and active work in the third zone is not to begin under the State law until 1922. Thus, Brazos County, like Harris County, shows its determination to go ahead now and not to wait several years for the benefits of tick eradication. Brazos County evidently has discounted arguments that tick eradication could not be conducted effectively as a county proposition and has seen the opposite claim borne out in Harris and other counties. With effective work, Brazos County will soon get rid of the tick, and thus another body blow will have been given to the parasite in its stronghold.

County Authorities Cooperating.

Progress of the work in the northern part of Texas indicates that at least 20 counties will be ready next December 1 for release from the Federal quarantine. Good cooperation, as a whole, is being received from county authorities, who are prosecuting violations of the dipping law and the quarantine regulations. Three applications for injunction suits to stop tick-eradication work were recently denied. It is stated, however, that recourse to legal action is becoming increasingly less necessary, as farmers and live-stock owners in all sections are becoming fully aware of the necessity for 100 per cent dipping if the tick is to be 100 per cent eliminated.

In Harris County approximately 1,000 farms have been released recently from local quarantines requiring further dipping. Harris County, part of the third zone, was released last year from Federal quarantine, and has been conducting "mopping up" work, and the release of 1,000 farms from dipping requirements indicates that the county soon will be rid of the comparatively small amount of infestation now present.

An incident reported from Tarrant County shows the menace that will remain so long as ticks are not eradicated. A stockman anxious to raise registered cattle imported a herd of good animals and placed them in a tick-infested pasture. Eleven cows, valued at $10,000, died from tick fever. He now has constructed a dipping vat of his own and is dipping his cattle every 9 days instead of every 18 days as he did before. His cattle now are in good condition. So long as ticks and tick fever are allowed to remain, cattle brought in from other sections will be under the constant danger of dying from the disease.

WILL INSPECT HORSE MEAT MEANT FOR HUMAN FOOD

To open up the channels of trade for some of the inferior horses in this country that do not pay for their keep, and to increase the meat supply in some of the larger cities in the United States and abroad where horse meat is used for human food, the United States Department of Agriculture is authorized by Congress to inspect horse meat and horse-meat products. The amendment to the regulations governing meat inspection by the department was passed by Congress on July 24, with an appropriation of $100,000 to carry on the work during the fiscal year ending June 30, 1920.

While it is expected that as a result of this amendment inferior horses throughout the country will be slaughtered for human food, it will open a market especially for the small horses—many of them wild—on the western range. These animals are eating much of the limited supply of range feed which is needed by live stock that is better able to pay for its keep. Elimination of the undesirable horses not only will save feed for more worthy cattle and sheep, but will add hides to the leather supply and increase meat stocks.

Horse Meat Must Be Inspected

Every establishment in which horses are slaughtered for the preparation of food products for transportation or sale in interstate or foreign commerce must be Federally inspected under the new regulations. All horse meat for export trade must be inspected. The slaughter of horses and the preparation and handling of horse meat must be conducted in establishments separated from those in which other animals are killed and handled. All horse meat or horse-meat products must be conspecuously labeled or branded: "horse meat" or "horse-meat product," and must bear the statement, "U. S. Inspected and Passed by the U. S. Department of Agriculture." The regulations list a number of horse diseases which, if found in any animal slaughtered, will cause it to be condemned as food.

Necessary for Export

One of the most important reasons for the new regulations is that many foreign governments will not import horse meat from the United States unless it is Federally inspected.

Briefly, in making possible the utilization of horses for meat, the regulations place the matter under Federal supervision, thereby insuring that the product is clean and wholesome.

The regulations, it is explained, merely provide for the inspection. The number of horses used for meat will depend on the extent to which horses are marketed for that purpose and likewise on the demand for the product.

AUCTION BOOSTS HOG PROFITS

At a recent fat-hog auction sale held by the farm bureau members of Fresno County, Calif., the proceeds amounted to $13,567. Six carloads of hogs were sold, the marketing being topped by the boys' pig club stock. There were 75 consignors at the sale and it was estimated that the growers received at least 1 cent a pound above the best local prices which producers could receive for small lots. On this basis the amount saved the growers by this one sale was $797.97.

SEED TREATMENT STOPS SMUT

A survey to check up the results of the smut-eradication campaign conducted last spring in Colorado showed that where such treatment was practiced there was very little smut, but where the seed had not been treated as high as 25 per cent infection was recorded. The survey was made in several counties where a total of 6,700 acres of wheat, oats, barley, and rye were examined.

In the improvement of beef cattle care has been taken to develop to the greatest extent those portions of the body from which are secured the high-priced cuts of beef. These points should be kept in mind when selecting breeding animals.

BELGIUM ACTIVE IN RESTORING LIVE STOCK REDUCED BY WAR

Department Representatives Find Optimism Prevalent There

Meats and Animals Will be Imported for Slaughter Until Home Supply is Restored; Much to Go from United States

LIVE-STOCK SITUATION ABROAD

This is the fifth in a series of articles describing observations on the live-stock situation in foreign countries by representatives of the United States Department of Agriculture.

The situations in France, the United Kingdom, Switzerland, and Italy have been discussed in preceding articles.

Government officials and farmers of Belgium are optimistic regarding the future live-stock industry of that country. In accordance with the terms of the peace treaty, Belgium is to obtain many thousand head of breeding stock from Germany and in addition will import meats and live animals for slaughter until the prewar supply of live stock is largely restored. Refrigeration facilities are being provided at Antwerp whereby, it is expected, 2,000 tons of frozen meat a month can be handled and distributed to other parts of Belgium. The thirtieth annual show of the Belgium Draft Society—the first show since 1914—was held at Brussels, June 13 to 15, 1919, and surpassed expectations.

These are some of the developments typical of Belgium activity in live-stock reconstruction as observed by representatives of the United States Department of Agriculture, who have just completed a study of agricultural conditions in Europe.

Reduction in All Classes

The live-stock situation in Belgium is still serious, however, as might be expected after four years of occupation by the enemy. There have been big reductions in all classes of live stock, but with undaunted hope and an impelling national spirit, the people have set about to restore their agricultural resources. They hope to accomplish this in three years, but even under favorable conditions the task is more likely to require fully twice that time.

Germans Restricted Horse Breeding

Horses in Belgium show a decline of nearly 100,000 head, or more than one-third of the number in the country in 1913, according to figures obtained from the Ministry of Agriculture. The Germans took more than 90,000 head, of which about 5,000 were stallions and about 71,500 were mares. The further reduction is accounted for by a reduced number of young stock at present, since mares could be bred only by permission of the Germans.

The peace treaty provides that Belgium is to obtain from Germany 200 stallions, 5,000 mares, and 5,000 fillies (18 months to 3 years old) of the Belgian draft breed. On account of scarcity of horses, cattle are being used for work purposes to a much greater extent than before the war.

Cattle Reduced 50 Per Cent

According to Belgian figures, the number of cattle in Belgium declined from 1,849,484 in 1913 to 898,892 in 1919, a falling off of nearly 1,000,000 head, or more than 50 per cent. Of these the Germans took more than one-half.

The loss has been partly reduced by the importation from Holland of about 4,000 milk cows which the Ministry of Agriculture has sold to the farmers, particularly in the devastated areas. In addition the peace treaty provides that Germany is to deliver to the Belgian Government 2,000 bulls, 50,000 milk cows, and 40,000 heifers. There was a serious drought in Belgium during the spring and early summer, causing a shortage of feed. Owing to this shortage, and in view of animals exported from Germany, little interest has been shown in additional importations of cattle this year except for slaughter.

"Cattle for slaughter," the report states, "have been imported from the United States, Canada, and Argentina. It is the policy to continue to import some animals for slaughter purposes and to import meats in larger quantities than before the war, until the Belgian herds are again restored."

Swine Decrease 77 Per Cent

The figures of the Ministry of Agriculture show that of 1,412.293 swine in Belgium in 1913, the total loss was 1,093.799, of which the Germans took more than 250,000. This great reduction of 77 per cent in the pig stock of Belgium means that large quantities of pork and pork products must be imported until the herds are restored. The terms of the peace treaty call for the delivery of 15,000 sows from Germany.

Must Import Dairy Products

From present indications, Belgium will import nearly 2,000 tons of condensed milk monthly during the coming fall and winter to supplement the scant fresh milk supply. The cost of fresh milk varied somewhat, according to locality, but during the time of observation, in June, averaged more than three times the prewar price. Butter was seen on sale in several stores in Brussels for 5.8 francs a half kilo, equivalent to about 80 cents per pound.

In summing up the observations, it is concluded that the Belgian live-stock situation, though serious, is not critical. There is a strong tendency against the importation of nonessentials, but the Belgian people realize that large quantities of their food products must be obtained from the United States.

LESSONS IN DAIRYING FOR ELEMENTARY RURAL SCHOOLS

To add impetus to the teaching of dairying in elementary rural schools the United States Department of Agriculture has just published Bulletin 763, which contains 12 lessons on the subject. With each lesson are given helpful directions for home projects that may be worked out with profit to every community and with real educational value to pupils. Practically all the subject material for class use and instructions for home projects can be found in available bulletins either free or at small cost, but teachers and pupils are advised to use additional sources of information, such as the printed matter from dairy cattle breeders' associations, books on dairying, and farm and dairy journals.

According to the bulletin teachers of agriculture are agreed that instruction on that subject should follow certain definite lines—it should be seasonal, be local in its interests, meet the needs of the pupils, and be practical. The home-project plan affords the best means of meeting these conditions, especially the practical side, for by it the pupil works out for himself the principles and theories taught in the classroom.

To Make Work Effective

The term "home project," applied to instruction in elementary and supplementary agriculture, includes as requisites a plan for home work and related instruction in agriculture at the school. It should be a problem new to the pupil; the parent and pupil should agree with the teacher on the plan; some competent person must supervise the home work; detailed records of time, method, cost, and income must be honestly kept; and a written report based on the record should be submitted to the teacher.

One of the means by which teachers may learn the dairy interests of the dis-

trict is a dairy survey. The pupils may assist in obtaining this information, but first-hand knowledge obtained by the teacher will be valuable. This survey should tell the kind of farm (crop or stock), purpose of dairy cows (commercial or home use), breeds of cattle, feeds raised, feeds purchased, milk records kept, how milk is tested, how milk is disposed of, and dairy conveniences. Information should be tabulated as it is collected. In addition the teacher with the pupils' help should prove charts showing the points of a typical dairy cow, samples of dairy records showing how they should be kept, directions showing the food value of milk, and drawings showing a section of the model dairy farm, milk house, etc.

Lessons in Bulletin

The bulletin contains lessons, giving sources of material, on the following subjects: Producing clean milk, care of milk and cream, weighing milk, testing milk, keeping of records and marketing dairy products, profit and loss (good and poor cows), judging and purchasing stock, care in handling of the dairy cow and barn, butter manufacture, food value of milk and its use in the home, making cottage cheese, cooking with milk products, and the use of milk as a supplement to other foods.

ENCOURAGE LAYING HENS TO TAKE EXERCISE FREELY

During the spring season fowls having free range get abundant exercise. Close confinement without exercise is not conducive to the best results, although the feed provided may be the best, for idle hens soon grow too fat to lay. It is almost impossible to give laying hens which are confined too much exercise. The fowls may be encouraged to exercise in various ways, such as feeding corn on the cob, suspending cabbage heads, beets, etc., so that the birds have to jump for them, and scattering grain in the litter. The litter should be from 4 to 8 inches deep, and may consist of straw (either cut or whole), hay, leaves, buckwheat hulls, shredded corn fodder, or any convenient material of this nature. The hens should be kept hungry enough so that they will work diligently all day for the grain scattered in this litter, which should be removed whenever it becomes damp or soiled.

The average farm implement is only about half worn out by use alone. The rest of the wear is due to rust and decay. Make the greatest possible profit out of machinery by using it continuously for profitable work until it is worn out.

Frost Subject to Many Local Conditions; Bulletin Tells Farmers When to Expect It

Some agricultural products in practically all parts of the United States are menaced by frosts in both spring and fall. The critical periods are when tender vegetation is threatened by the frosts of early spring and when that not matured is menaced by frosts of early autumn, but summer frosts occur occasionally in mountainous regions and in extreme northern sections of the country.

Conditions which produce damaging frosts are subject to modifications as numerous as the kinds of crops raised and as varied as local topography, local climate, and local soil conditions in the various sections of the United States. But as a general rule, when other atmospheric conditions are favorable for their occurrence, frosts may be expected in exposed places in the open country when the temperature, as reported from the larger towns and cities, by stations of the Weather Bureau of the United States Department of Agriculture, falls to 8° or 10° above the freezing point. The surface upon which frost is deposited must be at or below freezing temperature, although the temperature of the air a few feet above may be several degrees above freezing. It is the temperature of the air, in some instances many feet above the ground, that is given by the Weather Bureau observations.

Clear, Calm Nights Favor Frost

Radiation of heat from the earth's surface and from the free air is continuous day and night. During the daylight hours the gain of heat from solar radiation, even that which penetrates overcast skies, is usually greater than the loss by terrestrial radiation, so that the temperature generally rises, whereas the reverse is true at nighttime. Moreover, the loss of heat by radiation of the earth's surface is much more rapid than that of the air. Consequently the surface of the ground, especially vegetation thereon, tends to cool to much lower temperature (including air in close proximity thereto) than the free air near near by. This chilled condition of the earth cover favors the formation of frost thereon. Clear, calm nights and a relatively dry atmosphere favor the development of frost conditions to the fullest extent, because clouds not only retard terrestrial radiation, but also reflect and radiate back to the ground some of the heat that leaves it.

As a result of the foregoing conditions the air near the ground becomes coldest at nighttime, whereas it is progressively warmer and warmer above the surface level up to perhaps several hundred feet above the ground, where the air masses are warmest, above which level the temperature becomes lower again with elevation. This condition is known in meteorology as the inversion of temperature in free air, and this again is most favored by a condition of calm or comparatively still air and by clear and relatively dry atmosphere. On windy nights the motion of the atmosphere reduces the amount of difference of temperature that can occur, by mixing the lower layers to a certain extent and thus preventing in some cases a degree of cold that would otherwise result and which might be sufficient to produce a frost.

Frost Discussed in Bulletin

Discussions of the formation and seasons of frost and how growing plants may be protected from it, are contained in the Department of Agriculture's Farmers' Bulletin 104, "Notes on Frost," which may be obtained by application to the department. The Weather Bureau is preparing a more up-to-date publication on the subject of frosts, and expects to have it ready for distribution soon, but in the meantime farmers and others may benefit by reading the old bulletin, which treats the technical theme in a popular manner.

LOUISIANA PARISH REQUARANTINED

The Federal quarantine for cattle-fever tick has been replaced on Vernon Parish, Louisiana, by order of the United States Department of Agriculture, effective August 25, 1919. The effect of the quarantine is that cattle can not be shipped interstate from this parish except under the regulations promulgated by the Secretary of Agriculture. Cattle owners and parish authorities have failed to cooperate in the final clean-up work, it is stated. It is believed that no other replacement of quarantine in Louisiana will be found necessary.

The dairy farmer not only studies how to feed his cow, but how to feed his land. He is not a soil robber, as he realizes that the farmer who reduces the fertility of his land robs without reason, since he steals from himself.

Every poultry raiser should make a study of the market demands. A uniform color of eggs and flesh in poultry is desirable. A mixed flock will not produce uniform eggs or meat, and eggs from such a flock are not desirable for hatching.

Thorough Soil Preparation for Alfalfa; Use of Lime and Good Seed Also Advised

Cardinal points in alfalfa culture include thorough soil preparation, neutralization of the soil by lime where acid exists, use of high quality alfalfa seed of suitable varieties, proper inoculation of the soil where inoculation is necessary; all of which presupposes the seeding of the alfalfa at early enough in the fall to make the growth adequate to resist winter killing, and the development of a successful stand which will cope with the difficulties of unfavorable seasons.

This article relates particularly to Maryland, Virginia, and localities of similar latitude, although what applies to the territory named is also applicable in more or less degree to many other sections of the country.

Because of its high forage value it pays to devote much care, labor, and scrutinizing attention to the production of a profitable stand of alfalfa. The farmer who contemplates establishing a plot during the late summer should immediately begin his plowing as it is essential that a well-textured, tilthy, and thoroughly settled and compact bed be ready for the seed which should be sown not later than the middle of September and preferably during the latter part of August or the first week in September.

Manure Good for Alfalfa

The misconception is wide that none but thoroughly rotted and weed-free stable manure should be applied to the field which is to be broken and seeded to alfalfa. The fertilizing value of barnyard manure is so great and its liberal application is so beneficial to the alfalfa crop that specialists of the United States Department of Agriculture advise farmers to use all the manure they have available. The plant food realized from the fertilizer will tone up the soil and nourish the young seedlings so that they will get the jump on the weed crop, and once given this advantage the alfalfa plants will smother out the majority of the enemies which may develop. Save all the manure to which you have access and distribute it in liberal quantities over the field to be plowed for alfalfa, preferably before the breaking is attempted.

It is largely a matter of individual preference how many times the field is harrowed, dragged, and rolled before being seeded. It is essential that the subsurface of the soil be compact, and then be thoroughly fined before seeding. The seed should be sown preferably in a special alfalfa drill as it is necessary not to bury the seed too deep, a mispractice which often results where an ordinary grain drill with a grass seeding attachment is used. Where the alfalfa seeder is not available, a wheelbarrow or hand seeder may be utilized. The rate of seeding will vary in different localities. As a rule, from 15 to 20 pounds of good quality seed to the acre are deemed sufficient, although in some localities as high as 25 pounds of seed are sown. A weeder is an excellent implement for covering the seed after broadcasting, but if it is not available a spiked-tooth harrow may be used.

Soils Must Be Well Drained

All soils designed for alfalfa culture must, of necessity, be free from surplus soil moisture, that is to say, well-drained, while they also must be slightly alkaline. The simple litmus paper test which can be made by any farmer will indicate whether or not the soil is acid. If acidity exists, it is essential to apply lime in whatever form is most practical and readily available. Burnt lime, hydrated lime, finely ground limestone, ground or burnt oyster or clam shells and high-grade marls are all valuable for correction of acid conditions. Very much larger applications of ground limestone and marl are necessary than of burnt or hydrated lime. As good results are obtained from all the forms of lime, price, and availability will usually determine which form to use. If the farmer is not familiar with the subject it would be well for him to apply to the director of his State experiment station and the United States Department of Agriculture for literature and information on special points.

Inoculation of alfalfa fields is essential. The best and most simple system is to transfer some inoculated soil from an old sweet clover or alfalfa field to the new stand. This is best done in the afternoon of a cloudy day, the soil being distributed by shovel in the amount of about 300 to 400 pounds to the acre. This work should be done in the absence of sunlight as the sun destroys the bacteria which induce inoculation. Local inoculation cultures are also supplied by the various State experiment stations and the Federal Department of Agriculture upon request of farmers.

Before buying alfalfa seed the purchaser should inform himself fully regarding the variety best suited for his section and the quality of the seed with regard to both germination and purity. In choosing a variety or strain it is well to bear in mind that the quick-growing alfalfas, because of their tendency to produce heavier yields, should be used as far north as they will survive the winters. In the northern sections the variegated alfalfas, including the Grimm, the Baltic, and the Canadian variegated, have proved most successful in withstanding winter killing. In sections having very mild winters, Peruvian alfalfa has proved more profitable than longer strains, owing to its ability to produce considerably heavier yields. Usually it can be grown to advantage only in sections where minimum temperature is not lower than 10° F, and where ordinary alfalfa will succeed. Throughout Maryland and Virginia all the common strains of alfalfa which have been developed in Kansas, Oklahoma, Texas, and under similar conditions, give the most satisfactory results.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for grain supervisor, for men only, on September 30, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., and in the field, at entrance salaries ranging from $1,800 to $3,240 a year, will be filled from this examination. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for skilled laborer, qualified in pasteboard box making, for women only, to fill vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salaries ranging from $720 to $900 a year. Date of examination, September 23, 1919. Applicants should apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

WOOL SALES IN NEBRASKA

Ten cooperative wool sales have been held by the farm bureaus of 20 Nebraska counties, where all the wool has been pooled. The county agents have assisted in organizing plans and in getting buyers to place their bids. In the 10 sales a total of 198,305 pounds of wool was sold. The lowest price received was 35 cents a pound, the highest price 56¼ cents, with an average for the entire amount of 48½ cents.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Deparment of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

Women Like Pressure Cookers That Save Time, Fuel, and Money

Pressure cookers, which save time and labor, are gaining in favor rapidly in Iowa as a result of the work of home demonstration agents in many counties. In a county where 12 pressure cooker demonstrations were held last year the number increased from 2 to 42. In another county, 45 cookers are now in use and in another 50. One farm woman of Scott County says: "A farm kitchen is not complete without a pressure cooker to use in canning meats and during thrashing time."

One enthusiastic user of the cooker in Floyd County says: "I used my cooker for cooking meat at a church supper and cooked 18 pounds in 50 minutes. The flavor was fine and the meat perfectly cooked."

"Baked beans for 100 people were prepared in a 7-quart cooker in 45 minutes at our church supper," was the testimony of a woman in Wright County.

The wife of a doctor said she liked her cooker because she could start a meal when her husband telephoned her and have it ready by the time he was home. "It is easy to keep things hot, too, without wasting material or burning them up."

The report of one user seems to summarize the reasons why steam pressure cookers are being used to such a large extent especially in farm homes in Iowa. "It saves time, fuel, money, patience, and the serving of cold meals."

HOME SUPPLIES BOUGHT AT SAVING

Home bureau women in Otsego County, N. Y., decided it would be to their advantage to buy can rubbers and dyes cooperatively. Accordingly 1,752 dozen of can rubbers have been purchased at a saving of $87.60 and 208 packages of dyes at a saving $6.24.

CANNING QUOTA OVERSUBSCRIBED

Probably as a result of such campaigns as those for the Victory loan, Red Cross, and Salvation Army, many communities have got into the habit of oversubscribing their quotas. This is true, at least, of the women in Pinellas County, Fla., who started out last fall, under the supervision of the home demonstration agent, to fill 40,000 cans of fruit and vegetables. Recent figures collected by the agent show that from September 1, 1918, to July 1, 1919, the women of that county more than doubled this figure, filling 82,000 containers.

SINKS AND TABLES RIGHT HEIGHT SAVE WOMAN'S TIME

The height of a woman's kitchen sink and work tables are important factors in her well-being and well-doing. She can't do as much or as good work and feel well and strong with her sink and table so low that she has to bend over to work, or so high that she has to "reach up," as she would were they the proper height. As a general rule, 32 to 36 inches from the floor is the height for general work tables and the bottom of the sink should usually be 30 to 31 inches from the floor, the home economics kitchen of the United States Department of Agriculture suggests. However, each woman ought to find out for herself the height of the table at which she can work most easily and efficiently, and see that her work tables and sink are adjusted accordingly. Legs which are too long can be cut off, and those too short can be raised by blocks under them.

WHAT TO GIVE YOUR WIFE; OR A TIP FOR HUSBANDS

Selecting a present for his wife puzzles the average man. He knows the shops show a multitude of things designed to please women, but which to choose is a question. A business man in Lincoln Parish, La., found a happy solution of the problem last year. He bought, for his wife's Christmas present, a club girl's entire exhibit of canned fruits and vegetables.

It was an imposing present.

Rest rooms in towns for farm women are becoming more and more common. Last year in the 15 Southern States 137 new ones were established through the efforts of the home demonstration agents.

Rural Women to Sell Products Direct Through City Exchange

An exchange through which rural women can sell their products direct to city customers has been arranged by the home-demonstration agent in Rensselaer County, N. Y. A preliminary survey was made by letter to determine whether the rural women had any products, such as candy, canned fruits, vegetables, etc., for which they had no ready market, and whether the city women would be interested in buying these things. The response from both rural and city women was such as to indicate a real need for a woman's exchange, and, as a result, a small shop was opened in Troy.

As selling agent, this shop charges either 20 per cent on sales or accepts a $1 fee for 1 year and charges 10 per cent on sales. Orders are taken from samples and lists of products. The enterprise was started in small quarters. It is planned that, if the business justifies it, expansion will be arranged to allow the carrying of actual stock in quantity.

SIRUP FROM WATERMELONS

Sirup to take the place of sorghum has been successfully made from imperfect watermelons in many communities under the direction of the home demonstration agents of the Department of Agriculture and the State agricultural colleges. In Dunklin County, Mo., recipes to make it were given to each member of the farm bureau, to the teachers in the schools, and were put on window posters.

COTTAGE CHEESE IN NEW WAYS

Both city and country housewives have become familiar with the value of cottage cheese as a meat substitute. If your family is tired of your old recipes, in which the cheese is an ingredient, why not try some new, approved ones? "Cottage Cheese and Its Uses," Office of the Secretary Circular 109, issued by the Department of Agriculture, will be sent to anyone who writes for it.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FOREST FIRES THREATENING IN NEW ENGLAND WOODLANDS

Extreme danger from forest fires is present at this season in many sections of the White Mountains and other timbered areas of New England. This warning is issued by the White Mountain office of the Forest Service, United States Department of Agriculture, which urges the greatest precautions against carelessness that might result in disastrous blazes.

Dry conditions prevail in a large proportion of the forest lands, according to reports to the Forest Service office. Showers have been fairly numerous, but seem to have had no more effect than would heavy dews. Outlets of ponds and springs are reported as almost "dusty."

Berry pickers are urged to be especially careful, and cooperation in making the danger known is requested from logging workers, campers, trampers, and all others in the woodlands. A great proportion of the forest fires of the past have been caused by negligence or carelessness, and precautions by every person until the fall rains come will greatly reduce the present menace.

GAME OFFICIALS LISTED IN REVISED DIRECTORY

The twentieth annual directory of officials and organizations concerned with the protection of birds and game in the United States, Canada, and Newfoundland, revised by the Bureau of Biological Survey to August 1, 1919, has just been published as Department Circular 63 by the United States Department of Agriculture. It presents in convenient form the addresses of persons from whom information may be obtained concerning game laws. It also shows the date of establishment of each State commission or wardenship, the changes which have occurred in such offices since last year, and the publications issued by game officials.

During the year legislative changes affecting the administration of the game laws occurred in Idaho and Indiana. Idaho created a department of law enforcement with a fish and game bureau under its jurisdiction; and Indiana, a department of conservation with a division of fish and game, which was also specially authorized to encourage and assist in the organization of game protective associations throughout the State.

In 46 States and in Alaska for enforcement of game laws is intrusted to game commissioners, wardens, or other State officers; in Florida and Mississippi, to county wardens; and in the District of Columbia, to the Metropolitan police. Several national and two international organizations are interested in the protection of birds and game. In addition, State associations and many local organizations cooperate in the work of protecting game in 30 States and in Alaska. Thirty States and the District of Columbia have Audubon societies, organized especially for the study and protection of nongame birds.

CARE NEEDED BY HOGS IMMUNIZED FOR CHOLERA

Improper care of hogs following their immunization against hog cholera, administered in public stockyards and after arrival at their destination, has resulted in losses which may be materially decreased. The following instructions for the prevention of losses are issued by the Bureau of Animal Industry of the United States Department of Agriculture:

"Shipments should be made promptly after immunization, or should be delayed for not less than 10 days. Truck hauls and shipments not exceeding 36 hours in length can be made promptly to advantage.

"Avoid crowding; allow stocker hogs relatively more floor space than fat hogs.

"It is important that drinking water be constantly accessible to the hogs, except in severe winter weather. If the car does not contain special water devices, a water trough, protected by slats over its top, should be securely fastened to the floor.

"Little or no feed is necessary during the 24 hours following inoculation, but clean water should be accessible. Short-haul shipments need not be fed in transit.

"When hogs arrive at their destination they should not be driven over the roads, but hauled from the car to the farm in wagons or trucks. Load and unload gently. Avoid chasing and unnecessary excitement in handling. In summer, unload where there is natural woodland shade or shelter pens; in winter, where there are suitable clean, bedded houses.

"Protection against rain should be provided.

"Do not permit wallows in pasture or lot. The use of wallows by recently inoculated hogs may produce pneumonia.

"For the first two weeks, if it is in season, allow shipped hogs limited fresh pasturage. If alfalfa or other leguminous pasture is not available, a supplemental protein concentrate should be supplied. If no pasture, use self-feeders for soaked oats, and separate ones for tankage or other protein concentrate. At the end of two weeks begin gradually to change to the permanent ration. Keep fresh, clean water always available.

"Watch your hogs carefully each day for failure to feed or other signs of disease or sickness. Have a quarantine pen and place sick hogs in it promptly.

"Short rations and a laxative may be used for slightly sick hogs.

"The appearance of any disease in which a number of hogs are similarly affected requires immediate expert advice and treatment. Consult your veterinarian."

WOOL STOCKS IN U. S. ARE LARGEST EVER REPORTED

Manufacturers and dealers held more wool on June 30, 1919, than at any time since quarterly wool-stock reports have been issued by the Bureau of Markets, United States Department of Agriculture. The report shows a total of 674,000,000 pounds, grease equivalent, on hand June 30. Compared with stocks on March 31 of this year dealers on June 30 held 170,000,000 pounds more grease wool, 15,000,000 pounds more scoured wool, and 4,000,000 pounds more pulled wool. On June 30 manufacturers held 75,000,000 pounds more grease wool, 3,000,000 pounds more scoured wool, and 5,000,000 more pounds of pulled wool than on March 31.

Total stocks on June 30, 1919, in pounds by class, were: Grease wool, 455,834,958; scoured, 60,626,923; pulled, 32,439,943; tops, 14,637,444; and noils, 12,406,916.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

How Juvenile Club Work Leads Toward Community Betterment

Contests, which are a part of the boys' and girls' club work, are a strong influence in bettering agricultural conditions. In Potter Valley, Mendocino County, Calif., a boys' and girls' pig club was organized last year, and as a result of the work carried on there are now 11 new purebred boars in Potter Valley. No record has been made of the number of purebred or better-bred sows which have been brought in. The adult farmers in the community have become so interested in the contests of the club members that now they have organized a pig-feeding competition among themselves.

In Kings County, Calif., it is the custom to sell hogs entirely through public auction sales. Falling in with the spirit of club contests, five communities in Kings County have each undertaken to raise a carload of hogs. These hogs will all be sold at auction but, previous to the auction, they will be judged and a prize given to the community or farm center which has produced the best carload. In addition to the centers, the boys and girls' clubs in the county will undertake to produce a carload of hogs in competition with the adult farmers and compete with them for the prizes offered for the best carload. Competition of this kind induces a spirit of friendly rivalry and stimulates the interest of both old and young in community betterment.

Club Members Find It Is Hard To Give Up Animals They Raise

Many of the club boys and girls become so fond of the animals they have raised as club projects that they find it hard to carry out their original intentions of disposing of them to increase their bank accounts or to buy thrift stamps.

An 11-year-old club girl in Harvard, Ill., who had cared 11 months for her prize pig, vents her feelings in the following jingle:

I didn't raise my pig to be a bacon,
I brought her up to be my pride and joy,
I raised her for show, as you all know,
And I raised her as good as any boy.

A small boy with a mournful visage led his club pig in a thrift-stamp parade last March in Minden, La. Over the hog was carried a banner, "I'm going to die for my country. What are you going to do?"

BABY BEEF CLUB RECORD WON BY IOWA YOUNGSTERS

Iowa has made an enviable record in its boys' and girls' baby beef club work. From the first State fair exhibit of 13 calves entered in the show ring in 1915, to the State fair in 1918, when 111 beeves, or over one-third of those in the contest, were entered by club workers, the Iowa youngsters have established a record unequaled in the baby beef club demonstration work in the 33 Northern and Western States. The baby beef club demonstration work carries with it business principles, responsibility, ownership, and a definite interest in the farm and live stock.

RECORDS IN CONTEST

Number of calves in contest, 261.
Average feeding period, 299 days.
Average weight at start, 404 pounds.
Initial cost per pound, 10 cents.
Initial cost of beeves, $10,544.40.
Average gain a calf, 529 pounds.
Average daily gain a calf, 1.78 pounds.
Total value of feed, $21,011.51.
Average cost of feed a calf, $80.55.
Average weight at finish, 933 pounds.
Sale price a pound, 17 cents.
Average value a calf at finish, $171.19.
Total profit of calves at finish, $13,126.69.
Average profit a calf at finish, $50.29.

The assistant State club leader for Iowa, in charge of the baby beef club work, says: "The three main objects of the baby beef club work are: First, the keeping of records; second, the planning of the feeding ration during the different months of the year, which is a 10 months' feeding period; and third, exhibits at the local, State, and inter-State fairs."

The boys' and girls' extension work through clubs is designed to help young people find out what they are best fitted for and to give the correct point of view to both urban and rural youth, so that they will want to make further preparation for the business of farming and homemaking.

Orphan Lambs Good Investment for Boys and Girls of the West

Western club boys and girls still find the raising of orphan lambs profitable, in spite of the fact that they must pay a nominal price for them instead of getting them for nothing as in the past.

Raymond Hopkins, a member of a Summit County (Utah) boys and girls' sheep club, collected 44 orphan lambs from passing sheep herds last year. He paid an average of $1 for each and fed them milk and alfalfa, which cost him $44. The value of the lambs in the fall was $440 and the net return on the bunch was $352.

In spite of the hard luck she encountered raising her flock of orphans, Cecelia Carvey, a Nevada girl, cleared $60 on them. Last spring a near-by sheepman offered to give this club girl all the orphan lambs of his flock and to furnish the milk to raise them if half were returned to him when they were large enough to survive in the field without coddling. By the middle of April the little girl was looking after 60 orphans. For six weeks she kept them housed, feeding them five times a day. By the advice of her father they were put outside in a pen the middle of May. It turned cold within the first 24 hours, several died during the night and more the following days.

As they grew older, the amount of milk given and the number of feedings a day were decreased until they were finally weaned. Thirty big, husky lambs survived, to be divided between their original owner and the club girl. The 15 which were her share for raising were sold for $4 apiece.

GOOD PRICES AT AUCTION OF CLUB MEMBERS' CATTLE

"How much am I offered?" called out the auctioneer as he took the box in Cobleskill to sell 56 head of pure-bred yearlings raised by the boys and girls of the calf club in Schoharie County, N. Y. Immediately bids of $150, $200, $250, and $300 came from the assembled farmers. The good prices were offered for Holstein, Guernseys, and Jerseys alike, and all classes received spirited bidding. At the end of the sale a final computation showed that the 56 female

animals sold brought an average price of $268.66. The highest point of enthusiasm came when a magnificent Holstein heifer, Locus It Pontiac Bodora, 448533, was finally sold for $2,000. This heifer was raised and developed by a 12-year-old boy, Richard Baxter, of Sharon Springs.

The club members, their parents, and the buyers were all well pleased with the sales. The eyes of the young owners sparkled as the bids on their cattle crept up and up. The parents were delighted to see their boys and girls gaining valuable experience and making money, and the buyers were eager in securing the beautiful purebreds. Older men in the crowd were heard to remark, "Oh, if we could have had such a chance when we were young." "These boys and girls are making better farmers than their parents." "Never before has our county received such a boost in breeding better dairy cattle."

LESSON IN POULTRY FEEDING MAY BE LEARNED FROM NATURE

The nutriment in the feed of laying hens serves a twofold purpose—to repair waste and furnish heat to the body and to supply the egg-making materials. As only the surplus over what is needed for the body is available for egg production, the proper feeds should be fed in sufficient quantities to induce this production.

In supplying feed to fowls there are three kinds of constituents which should be present in certain fairly well fixed proportions if the desired results are to be obtained most economically. These constituents are mineral, nitrogenous, and carbonaceous, all of which are contained in corn, wheat, oats, and barley, but not in the right proportions to give the greatest egg yield. In addition some animal feed and green feed should be supplied.

In feeding poultry a valuable lesson may be learned from nature. In the spring the production of eggs on the farm is an easy matter. Fowls which are at liberty to roam find an abundance of green and animal feed on their range, which with grain furnishes a perfect ration for laying hens. In addition to this they get plenty of exercise and fresh air. So far as lies within his power, then, the feeder should aim to make the winter conditions springlike.

There are many advantages to be gained when the stock raisers of one community raise the same breed. Better prices may be secured from the sale of a uniform product and suitable breeding stock can be secured near home.

Orchard Cover and Green Manure Crops Need to Be Distinguished in Many Cases

Cover crops and green manure crops play an important part in orcharding. While each may serve to some extent the purpose of the other, and the terms are often used loosely without distinction of meaning, there are some differences that are clear cut, according to United States Department of Agriculture specialists.

A green manure crop is one that is used primarily with a view to its being worked into the soil to maintain or increase the humus content. In some cases it may also serve the same ends as a cover crop.

A cover crop is used primarily to give protection to the tree roots during winter, or to aid otherwise, as in conserving plant food or controlling tree growth. Protection of tree roots in winter is sometimes of special importance in regions where the temperature drops relatively low and where the ground is likely to be without a blanket of snow much of the winter season. A cover crop worked into the soil adds humus, the same as does a green manure crop.

Factors in Choosing

The kind of crop used for either of these purposes will depend to a considerable extent upon the region and upon the details of the conditions. Not infrequently the grower can exercise a choice between several, any one of which will serve the purpose. The availability and price of seed, the proved value in his section of a particular kind of crop, or some other factor, may fix the choice.

The importance of adequately maintaining the supply of humus in orchard soils has been demonstrated by many fruit growers, particularly in cases where clean tillage has been practiced year after year without the return to the soil of any vegetable matter of consequence. The soil becomes difficult to handle and the trees show the effects of poor nutrition. They look sickly and are unproductive.

The time and manner of putting in the cover crop will depend upon many things, such as the kind of crop used, the full intent of the plan, the region, and seasonal conditions. For instance, if the grower desires to use cowpeas and to mature a crop of seed for use another season, he may plant early in drills and thus be able to continue the tillage of his orchard until midseason; or, he may sow the cowpeas broadcast early in July when he cultivates the orchard for the last time in the season. In the latter case frost would likely kill the plants before the seed was mature. If a late-growing crop, such as rye, is used—one which will live over winter and start into growth early the next spring—it may be sowed much later in the season than where a tender plant, such as cowpeas or buckwheat, is used.

Soil Moisture Important

Another exceedingly important consideration is the soil moisture. However great the need of a green-manure crop may be, so far as the condition of the soil is concerned, it may sometimes be exceedingly poor judgment on the grower's part to put one in his orchard as, for instance, in a season when the trees are suffering from lack of moisture. Under such conditions, if the soil is very dry, either the cover-crop seed will not grow well and therefore be of little real value in the way intended, or else if it does germinate the growing crop will further add to the distress of the trees by taking moisture that they need and would otherwise get. Still further, the unfavorable moisture conditions intensified by the growing cover crop would result in the fruit failing to develop well. The fruit would be very small and otherwise lack the qualities of that grown under favorable conditions.

While cover crops, wisely used, may contribute much to the welfare of an orchard and to the plumpness of the grower's pocketbook, they may, on the other hand, be a means of adding to the grower's troubles if he works by rigid rule rather than by the underlying principles.

HIGH ACID PHOSPHATE PRICES NOT JUSTIFIED BY SHORTAGE

(*Continued from page 1.*)

sible justification for any advance in the prices that prevailed in June. The department holds that a mere shortage of supply in the existing circumstances is not in itself a sufficient justification for increased prices.

Overgrazing will ruin the best of pastures.

Michigan has a law to encourage the planting of fruit and nut trees along State highways.

Many farmers are pooling their interests and purchasing fertilizers together in carload lots.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

Organization with Good Plan Harvests Wheat in Record Time

Farmers in the St. Paul district in Nebraska worked out a unique plan for getting their wheat cut and shocked in record time. Articles were written by the county agent and published in the local press to the effect that it would be necessary to build up a local organization to help save the wheat crop. It was decided to have a banker, the secretary of the commercial club, and the county agent take care of the matter, with the agent as chairman.

The agent worked out a plan which was approved by the committee to have all farmers report by 2 o'clock each day and list the number of acres already cut and ready to be shocked that evening. A card or chart was placed at the post office at 5 o'clock each day. This information was telephoned to all the towns in the county, which enabled the committee to distribute the available labor to the best advantage. From 35 to 50 men were sent out each evening to help shock wheat, receiving 50 cents an hour for their labor.

The records were kept in the office of the county agent. Every man going out reported each day the number of hours worked on each farm. The clerk of the farm-labor bureau made out a total bill when the job was finished, and the farmer paid the laborers for their services by one check.

WHEAT AND OATS SAVED BY TREATMENT OF SEED

Evidence that it pays to treat wheat and oats at the time of planting with formaldehyde to prevent smut is given in reports of a number of demonstrations conducted by Indiana county agents. Fields of oats in DuBois County, sown with seed treated with formaldehyde for smut as recommended by the United States Department of Agriculture and the State agricultural college, showed practically none of the disease, while fields planted from seed not treated contained about 15 per cent smut, according to the local county agent's report.

As a result of the demonstration conducted by the county agent in Warren County, it was found that a plot of oats planted with untreated seed showed 33 per cent smut, while another plot in the same field planted with treated seed was free from the disease. Other oat fields throughout the county that were not treated were infested with the disease in amounts varying from 7 to 35 per cent.

As a result of the damage done by wheat smut in Porter County, farmers will lose about $140,000 on the crop, according to statistics compiled by the county agent. In checking up the damage done by smut the agent found that the disease had caused about 7 per cent decrease in the county's yield. About two-thirds of the farmers of the county treated their seed and effected a saving of nearly $100,000.

The county agent of Steuben County, in company with a representative of the United States Department of Agriculture, found one field of wheat with as much as 84 per cent of smutted heads, and considerably more than 50 per cent of the crop was lost. Other fields showed as high as 40 to 50 per cent of scab. Where wheat had been sown in corn stubble ground the scab was much worse than where it followed other crops. The agent took advantage of the gatherings of farmers while they were thrashing to show how smut and other cereal diseases were causing losses and to demonstrate methods of seed treatment.

RETAIN FIRE ORGANIZATIONS

The rural fire-fighting companies organized in war time by the farm bureaus of California have proved so successful that they are being reorganized this year for use in the present fire season. Most of the counties report that the equipment has been overhauled, repaired when necessary, and that the companies have been brought up to full strength and ready for work. In a number of counties the companies have been called out for service.

BUILD LIVE-STOCK SALE PAVILION

The farm bureau of Dickey County, N. Dak., has planned to erect a sale pavilion to cost $12,000. The organization is to be incorporated and known as the Central Dakota Sale Pavilion Co., capitalized at $25,000. Officers who have been elected will constitute the executive committee delegated with full authority to proceed with the work.

Hog-Feeding Demonstrations Planned by 396 Indiana Men

Demonstrations in feeding hogs will be conducted this fall by 396 Indiana farmers cooperating with the county agents in that State and representatives of the United States Department of Agriculture. Demonstrations in hogging-off corn, either with corn alone or with various supplements, such as soy beans grown with the corn or fed in self-feeders, will number 151. The other demonstrations are intended to show the economy of using a self-feeder supplementing corn with a concentrated protein feed and other economical hog-feeding methods.

It is expected that the influence of these demonstrations will reach to practically every hog-raising section of the State, for they are to be conducted in 232 townships in 39 counties. Farmers, through their township and county organizations, are supporting the work extensively, because they have learned that hog-feeding demonstrations are the most efficient way of finding out what methods of feeding are the most economical in their particular case. While the fundamental principles of feeding are the same, the details of applying them to feeds available, forage crops grown, environment, etc., make the demonstration work in each community helpful.

COOPERATION IN SHOWING GOOD STOCK AT FAIRS

Members of the Johnson County, Ind., Shorthorn Breeders Association have arranged to make a cooperative showing of their best cattle at several county fairs as well as the Indiana State fair. This cooperative plan of exhibiting live stock is a good way of winning a reputation that will attract buyers to the association and community, reports the local county agent.

This association, continues the report, has recently taken up tuberculin testing for all herds in the organization. All members expect to place their herds on the accredited list as being free from tuberculosis. The testing will be done under the supervision of the United States Department of Agriculture. The members of the association believe that this will be profitable for them if for no other reason

than that it will attract buyers to the community and will enable the breeders to ship their live stock to any State in the Union.

How Peach Growers of Utah Increased Their Crop Profits

Washington County, Utah, farm bureau members grouped together to market their peach crop this year. The crop was marketed through one of the wholesale fruit commission merchants of Salt Lake City. The shippers shipped 90 per cent of their marketable peaches and netted from 3 cents to 8 cents a pound, the average price being 4 cents net, while the portion sold other years never brought over 1 cent net. The crates of peaches were shipped to Salt Lake City, being delivered to the railroad by auto truck with regular daily connections.

The county agent visited each shipper at his orchard and gave demonstrations in wrapping and packing. To keep things moving and to see that no inferior fruit was crated a visit was made to each orchard each day. By use of the telephone the agent kept in touch with the market in Salt Lake City in order to know the condition of fruit on arrival at the market. The auto trucks were lined up so that the fruit was kept moving without delay. Eight thousand crates for packing were ordered cooperatively, a saving of 10 cents on each crate being made, or a total of $800.

BOYS BOOST PURE-BRED PIGS

The increase in the number of breeders of pure-bred animals in Clay County, Ind., is largely credited to the influence of the local pig club. Two years ago there were less than 10 breeders of pure-bred hogs in the county, but at present registered hogs can be found on more than 100 farms. The boy and girl members of the club are the pioneers in the keeping of pure-bred hogs. Recently 10 big-type Poland China gilts, of excellent quality and valued at $50 each, were issued to the members of the club by the local county agent.

FARMERS OPEN WHOLESALE MARKET

A wholesale produce market was opened in June in Trenton, N. J., by the farmers of Mercer County. The county agent brought interested farmers together in 1918 and cooperated with the State bureau of markets and the city of Trenton in establishing a combined wholesale and retail market. Business of more than $450,000 was transacted there last year. Certain disadvantages were readily apparent and in the spring of 1919 the county agent invited a few of the leading farmers who sell in Trenton to a conference with the mayor. Through this and several other conferences the State bureau of markets and the city were advised of the farmers' needs, and the wholesale market was established apart from the retail market.

FARMERS FORM COMPANY TO PRODUCE LIMESTONE

Members of the farm bureau of Sussex County, N. J., have formed an association—the Farmers' Cooperative Limestone Company of Branchville—which is capitalized at $10,000, with $5,000 already paid in. The shares have a par value of $50 and were offered only to farmers, no one being allowed more than two shares. A committee selected the site for the crusher and the source of rock, drew up plans for incorporating, and attended to all other details. Contracts for machinery and buildings to cost $4,600 have been let.

The plant will have a capacity of three tons an hour and will be provided with a storage bin of 500 tons capacity. A ledge of rock has been leased for 49 years at a royalty of 7½ cents a ton, and it is expected that limestone will be sold for less than $3 a ton.

CLEAN THRASHING SAVES WHEAT

Members of the farm bureaus of Kittson County, Minn., last year saved $77,000, or about $500 to each thrashing machine, by using tight-bottom racks, canvas under the feeder, cleaning up when required and after each setting of the machine during the thrashing season. A conservative estimate of the saving by clean thrashing in this county was 27,500 bushels of wheat, 20,400 bushels of oats, and 10,000 bushels of barley.

GOOD RESULTS FROM BULL CLUB

Members of the farm bureau in Benton County, Wash., who organized a bull club three years ago, have sold, for $1,050, a bull which they purchased for $350 when they organized. The bull, Prosser Pogis, is a full brother of Sophis Agnis, who made the world Jersey record last December and is now second highest butter producer in the Jersey world. The club of farmers who owned this animal was induced to organize and send to Lowell, Mass., for him because he had a long line of high-producing ancestors. Three new bull clubs are now in process of organization in this State.

Advertising Their County As a Center of Live Stock

The farm bureau of Buchanan County, Iowa, in cooperation with the Independence Commercial Club and similar organizations throughout the county, has created a general fund for the purpose of advertising the county as a center of pure-bred live stock. A trade-mark has been adopted and electrotypes made and distributed broadcast.

Every piece of business stationery going out of Independence is to carry this trade-mark. Each member of the farm bureau will be supplied with stationery and envelopes bearing it. Five thousand galvanized signs, 14 by 26 inches, are being made and will be posted on all roads leading into and out of the county, calling attention to this organization with its 392 members. Space has also been contracted for in some of the leading agricultural papers in which this trade-mark will be carried.

FIGHTING ALFALFA WEEVILS

Farm bureau members of Millard County, Utah, sprayed 250 acres of alfalfa for control of weevils at an actual cost of $1.10 an acre. It is estimated that 500 pounds of hay were gained to the acre, besides eliminating the necessity of the cultivation and brush drag method.

BENEFITS FROM CATTLE SALE

At the first consignment sale of a Shorthorn breeders' association composed of members of the farm bureau of Henry County, Iowa, 39 cows and heifers sold, averaged $310 each, and 7 bulls averaged $190 each. The top sale price was $675. A number of these cattle were bought locally by men who had not before been in the Shorthorn business.

BETTER PRICES FOR FRUIT

The farm bureau of San Juan County, N. Mex., induced a fruit exchange to send a representative into the fruit district to estimate the crop and make a general offer. This representative offered either to buy apples at $1 a box, orchard run,

furnish the boxes and pick the fruit, or handle the fruit on a commission basis. On the basis of the flat price, and estimating that only one-half of the fruit would be sold on that basis, the fruit growers will receive approximately $5,750 more than in previous years.

Montana Farmers Give Help In Nebraska Wheat Harvest

The farm bureau of Cheyenne County, Nebr., obtained 275 farmers from the vicinity of Great Falls, Mont., to assist in harvesting the wheat crop. Bankers advanced the transportation, which amounted to more than $6,500, and a special train was used to bring the men to the county. When the train arrived a number of farmers were there with their cars ready to take the men to the country. A large number of men brought their bed-rolls with them and were ready for any emergency that might arise from lack of sufficient sleeping quarters.

The great majority of the men coming were farmers who had suffered the loss of crops through the drouth of the past three years. Most of them had families in Montana, and returned there at the end of the harvest season. Many were employed in the cutting, stacking, and shocking of grain, but will be given work as thrashers and then will be employed in fall planting.

SEEDS SOLD ON CREDIT BY COMPANY OF FARMERS

Members of the farm bureau in San Miguel County, N. Mex., formed an emergency seed company at the beginning of the year for the relief of small farmers who were unable to purchase seed. Two and 262 small farmers were given seeds barley, corn, millet, alfalfa, and cane seed were distributed by the company, and 262 small farmers were given seeds on credit to the amount of $5,362, notes, properly secured, being taken in each case.

Besides these farmers, 95 others purchased seed for cash, making a total of 367 farmers assisted. The handling of this matter in an organized way has been helpful to the county agent assisting the various farmers to choose the seeds to be planted, and the fact that seed was being furnished on credit gave the agent considerable leverage in outlining the best methods of cultivation and selection to be followed.

Alabama Rivals Denmark in Marketing Hogs Under Cooperative Arrangement

Alabama, long laureled as a prolific producer of cotton and cane, has reversed gears and, like Georgia, is developing into a producer of pork products. Favored with a mild climate, cheap lands, keen home markets, and a long growing season which permits of making pork inexpensively on forage crops, the State is right on the heels of some of the corn belt regions in emphasizing the importance of "Mr. Hog" as a premier mortgage lifter. Furthermore, in cooperative hog marketing, Alabama is rivaling Denmark.

From July 1, 1918, to June 30, 1919, 47 counties in Alabama marketed 3,219 carloads of hogs, of which 1,195½ carloads consisted of cooperative shipments. These figures do not include all the hogs sold in or exported from Alabama during this period, as a large number were marketed by auto truck or wagon at the stockyards in Montgomery and Birmingham, as well as at two packing plants in the State. It was impossible to obtain accurate figures on hogs not shipped by railroad.

A representative of the United States Department of Agriculture reports that as accurately as he can estimate the 47 Alabama counties mentioned, disposed of between 5,000 and 6,000 cars of hogs in the year. He lays special stress on the fact that the Alabama county agents were instrumental, either directly or indirectly, in marketing the majority of these fat swine. Franklin County farmers shipped 473 cars of hogs cooperatively, while Henry County hog raisers disposed of 124 carloads, Barbour County producers sold 120 carloads, and Butler County countrymen marketed 117 loads. Montgomery County, Ala., marketed only 17 cars of hogs cooperatively, while altogether it sold approximately 300 loads, this county being one of the leading pork producing sections of the State. Furthermore, Autauga County shows only 12 cars shipped cooperatively, while it has sold over 200 carloads of fat hogs all told. One farmer in this county marketed $5,500 worth of hogs at Montgomery, using motor trucks to move the porkers from his farm to the stockyards.

State and Federal experts believe there will be a material increase in the amount of pork produced as well as in the carlot shipments of hogs from Alabama this year, despite the increased interest and acreage in cotton brought about by high prices. Apparently the squealing shote has detrained at Alabama for a long and prosperous stay.

MONUMENT TO FIRST PLOWMAN

Exercises of an unusual nature were held at a recent picnic of the Cascade County, Mont., farm bureau. It was the dedication of a monument to commemorate Robert Vaughn, who, in 1868, plowed the first furrow in the county. The monument, which is made of cobblestones and is about 6 feet high, contains a brass plate inscribed: "The first plowing in Cascade County was done by Robert Vaughn in 1868, in whose memory this monument was erected in 1919 by the farm bureau."

WOOL RECEIPTS INCREASED

The Farm Bureau of Millard County, Utah, through its live-stock project committee and county agent, induced 54 farmers to cooperate in the marketing of the wool clip, with the result that 32,500 pounds of wool were pooled and marketed at an average price of 50 cents a pound. This was 7 cents more a pound than anyone had received for wool up to that time and netted the 44 growers $2,250, or an average of $50 more for their wool than if sold individually.

LIMESTONE INCREASES WHEAT

For two years the county agent in Jefferson County, Ind., has been carrying on demonstrations to show the value of ground limestone on acid soils. In one demonstration this year an average of 25½ bushels of wheat were produced to the acre. Neighbors who helped thrash this wheat, and who have land that is just as good, except that they did not make applications of ground limestone, obtained only 15 bushels to the acre. This high yield is hardly an exception, reports the agent, for similar results were obtained by other farmers in the section who used limestone.

The savage lives within his income. Are you doing any better? Buy War Savings Stamps.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Road-Building in Full Swing.

Since early in 1919 there has been a steady increase each month in the Federal-aid business in the Bureau of Public Roads of the United States Department of Agriculture. States in all sections of the country are filing their projects and receiving allotments. The road-building era is in full swing, and it would seem that the end is not yet. All indications point to greater records in the months immediately to come.

Based on complete reports from 44 of the States cash expenditures on the rural roads and bridges of the United States for the calendar year 1918 amounted to $286,098,193. To this should be added the value of statute and convict labor, which can not be fixed with any great degree of accuracy but probably amounted to not less than $14,000,000, thus making the grand total expenditures for the year $300,000,000. This total is made up of the actual expenditures for such items as labor, materials, supervision and administration directly connected with the construction, improvement, and upkeep of public roads and bridges outside the limits of incorporated towns and cities, and does not include any item for sinking fund payments or redemption and interest on road and bridge bonds.

The year 1918 offered an unprecedented condition in practically all lines of highway work. There was not only a tremendous increase and expansion in the amount of heavy truck traffic on public roads and an unprecedented shortage in regard to road materials, labor, and ready funds, but also a decided increase in maintenance work, which was, however, partially offset by a decrease in the amount of new construction.

Cholera Kills Fewer Hogs.

According to records of the United States Department of Agriculture for the 13 months from April 1, 1918, to April 30, 1919, hog cholera killed 2,815,004 hogs, valued at $62,042,688.16, in the United States. This is the lowest loss by numbers for a similar period in the live-stock history of the United States, but on account of the high price of hogs the monetary loss was heavy. For example, during the year ending March 31, 1913, hogs numbering 6,064,470 and worth $58,833,653 died from cholera, while the next year the disease took 6,304,320 hogs worth $67,697,461.

Department experiments show that timeliness in vaccinating hogs against cholera is all important. When exposed hogs were vaccinated, while still apparently healthy, losses amounted to only 4 per cent, but when vaccination was deferred until the animals showed external signs of sickness, losses averaged nearly 29 per cent. This shows that the man who puts off the preventive treatment until his hogs are sick with cholera stands only about one chance in seven of preventing fatal results. It is important, also, to maintain hog yards and barns in clean and sanitary condition.

First State for "Better Sires."

Connecticut is the first State in the Union to enroll officially as a supporter of the "Better Sires—Better Stock" campaign of the United States Department of Agriculture, the State agricultural colleges, and cooperating agencies. Connecticut authorities have decided to deputize their county agents with authority to examine and approve the animals of each farmer who desires admittance to the 100 per cent pure-bred sire club. Delaware and Virginia were the second and third States, respectively, to enroll. The "Better Sires—Better Stock" campaign, to begin October 1, is arousing keen interest throughout the country.

The Federal authorities in charge of the campaign will keep accurate records of the animals by kind, breed, sex, and blood lines of each farmer who enrolls. The lists will be kept by States and counties so that there will be readily available a record of the breeding stock belonging to farmers who have been granted the official emblem of the better-sires movement.

An emergency county agent at Conyers, Ga., was the first to request enrollment blanks for distribution among the farmers of his section.

Finding Trucks' Effect on Roads.

To determine the destructive effect of heavily loaded auto trucks on highways and streets, and to meet the demand for data on the design of road surfaces and foundations to withstand such heavy traffic, a series of experiments is being conducted by the Bureau of Public Roads, United States Department of Agriculture, at the Arlington Experimental Farm to determine the impact of auto trucks on roads.

The most striking single development in the highway field in 1918 was the tremendous increase in motor truck traffic. Five years ago heavy motor trucks were few in number and limited practically entirely to the paved streets of larger cities. These vehicles now comprise probably 4 to 5 per cent of the grand total of all motor vehicles and are to be found wherever traffic conditions permit profitable use. But very few roads were designed to carry any large volume of this class of traffic. Consequently, the cost of adequate maintenance was increased greatly during the year. In many places the damage due to the incessant pounding of these fast and heavy vehicles was so great as to require complete reconstruction.

Meats Shipped Abroad.

From July 1 to August 9 last, 15,114,047 pounds of fresh and frozen beef, 6,794,538 pounds of canned and pickled beef, 15,297 pounds of lamb and mutton, 3,153,832 pounds of fresh and frozen pork, 50,367,813 pounds of hams, shoulders, and bacon, 55,281,142 pounds of lard and lard compound, 1,304,472 pounds of sausage, 57,007,129 pounds of salted and pickled pork, and 253,966 pounds of poultry and game were exported from New York to Belgium, Holland, and Sweden. In this period, also, 420 horses were exported to France and 126 head of cattle were shipped to Belgium, according to records of the United States Department of Agriculture.

Sheep and Lambs Make Record.

July receipts of 457,619 sheep and lambs were the largest on record for that month at the Chicago Union Stock Yards, exceeding by 1,906 animals the former record of July, 1912, according to the United States Department of Agriculture. This year's run exceeds that of July, 1918, by 117,277 animals. The increase is attributed to the mild weather and favorable spring which resulted in an increase in the number of marketable lambs and also to the fact that earlier lambing and marketing are being practiced. Drought

conditions in the Northwest range district and the late start of Tennessee and Kentucky lambs marketward also were factors in swelling the July receipts.

To Complete Old National Road.

A project under the Federal aid road act, filed with the Bureau of Public Roads, United States Department of Agriculture, which will undoubtedly hold the record for length and cost for some time to come, is of unusual interest aside from its great length and cost. It contemplates, after the lapse of nearly a century, the completion of the Old National Road, extending from the Potomac to the Mississippi, which already has been largely improved as far west as the Indiana line. The Illinois improvement will extend from East St. Louis across the State to the Indiana line, traversing St. Clair, Madison, Bond, Fayette, Effingham, Cumberland, and Clark Counties.

The proposed type of surface is monolithic brick and concrete pavement, the average cost of which is about $30,000 per mile. The proposed improvement includes also the construction of 40 bridge structures, of lengths ranging from 22 feet to 300 feet. At present the uncompleted portion of the highway is generally an unimproved earth road, which becomes nearly impassable at certain seasons of the year. There are, however, near some of the villages, short stretches of macadam pavement, generally in very poor condition. The local traffic consists of approximately 60 trucks, 700 motor vehicles, and 50 horse-drawn vehicles per day, to which is added during the summer months a through traffic of about 20 trucks and 200 passenger motor vehicles.

Good From Beekeeping Schools.

If all the beekeepers in the three largest beekeeping States were gathered together they would not exceed in number the beekeepers who attended meetings in the last fiscal year held by the Bureau of Entomology of the United States Department of Agriculture. Extension specialists in this branch of agriculture were first sent out in the fall of 1916, but it was not until the United States entered the war that the work began in real earnest. During the past year an average of 12 extension men were working in 20 States. They held 1,000 meetings and addressed more than 25,000 beekeepers. In addition, they visited more than 2,500 beekeepers in their apiaries, giving individual attention to the problems in beekeeping which were causing them most trouble.

The Bureau of Entomology also undertook a more elaborate type of extension work last year—extension schools for beekeepers engaged commercially in the industry. Only seven of these schools were held in the year, but an average of 100 commercial beekeepers attended, and it is believed by the beekeeping specialists of the department that these resulted in greater good to the industry than might have been accomplished in the same time by any other type of work. It is planned to hold more extension schools during this fiscal year, these being confined to States where beekeeping is already well established as a commercial enterprise. Naturally an amateur beekeeper will not care to "go to school" for an entire week and the avowed purpose of these schools is to make still better beekeepers of those now heavily engaged. Plans are completed for four schools to be held in California beginning November 17. A school will be held in Texas at a date to be announced later, and one will also be held in New York. At the New York school, held at the College of Agriculture, at Ithaca, last February, some of the beekeepers promised an attendance of 600 if the school is repeated next winter, and the beekeeping specialists of the bureau are anxious to give their beekeeping friends in that State a chance to "make good" on this promise.

Largest County Bond Issue.

St. Louis County, Minn., by a vote of about 9 to 1, carried on July 1 a proposition for the issuance of road bonds to the amount of $7,500,000. This is the largest sum ever voted or set aside for road building by any county in the United States. The second largest was that of Dallas County, Tex., voted a few weeks ago of $6,500,000.

Negro Home Clubs Gratifying.

Much has been accomplished along the lines of health and sanitation in the homes of Southern colored people by the clubs organized by the United States Department of Agriculture and the State colleges. Cleaner premises, walls, and spring houses, and better repaired houses and cabins are some of the results of this work. The negroes embrace with eagerness the opportunity offered through the clubs to improve the conditions of their homes. In 1918, 1,563 rural colored women's clubs were organized with 37,913 members, and 1,962 girls' clubs in the same year were organized with a membership of 50,995. The total colored club membership is 103,377.

The members are taught gardening, canning and preserving, sewing, bread making, cooking, the making of special products, the making of devices to save labor and improve sanitation, and improved methods of raising poultry and making butter and cheese. The colored women in these clubs have organized 117 cooperative poultry breeding associations, which have for their purpose the securing of better bred fowls to head their flocks, and 50 cooperative egg circles are the means by which they obtain a better price for their products.

Southern Marketing Clubs Increase.

Southern women who raise poultry are learning through the clubs organized by the United States Department of Agriculture and the State colleges to market their products cooperatively and are reaping the benefits which result from this method of selling. The members of the egg circles guarantee the freshness of their eggs and cater to a class of customers who are willing to pay extra for this guarantee. In 1918 over half a million eggs were marketed collectively by club members. This represents a value of $233,746. Cooperative poultry breeding associations are also popular among the women in the South. Last year 94 new breeding associations were organized and 22,922 fowls were sold for breeding purposes by members of these clubs. The standard-bred roosters sold brought $34,968. The work is not only valuable because of the improved stock of poultry which is being raised in the neighborhoods where the clubs are located and the increased cash income, but because these clubs are instrumental in giving the farm women and girls better business training. This results in the establishment of confidence in cooperation both as to production and marketing.

Sheep Parasite Samples for Field Men.

Attractive cases containing samples of the more common internal sheep parasites, preserved in alcohol, are being furnished by the Division of Animal Husbandry, United States Department of Agriculture, to all the State sheep specialists. They will be used to familiarize sheep raisers with the parasites so that they may be better able to combat them. The cases were prepared by the Animal Husbandry Division in cooperation with the Zoological Division and contain samples of stomach worms, tapeworms, lungworms, hookworms, grubs, and a part of the large intestine of sheep, showing nodules, the cause of nodular disease.

Cooperative City Rat Drive.

Good results were obtained recently in a rat eradication campaign in Norfolk, Va., cooperated in by the Bureau of

Biological Survey of the United States Department of Agriculture, and the city health department. Methods of extermination recommended were systematic trapping and poisoning. An excellent poison bait was found in barium carbonate rubbed into the edible part of slices of cantaloupe. Other very effective baits, with barium carbonate, were sliced tomatoes rolled in the poison, and green corn, canned corn, ground meat, and ground cheese, mixed in the proportion of one part of barium carbonate to four parts of bait. These poisoned baits were placed in the rat runways two or three nights in succession. After poisoning operations much permanent relief may be obtained by following up with systematic trapping, but in an initial campaign of this magnitude poisoning operations are absolutely essential.

Sheep Growing Profitable on Northwestern Irrigated Farms

Sheep keeping in the irrigated regions of the Northwest might be made a source of profit by many more farmers. Numerous farmers scattered throughout the northwestern irrigated districts have found it a profitable business for a number of years and have gained experience which should be of benefit to other owners of irrigated farms. The results of their experience have been embodied in United States Department of Agriculture Bulletin No. 1051, "Sheep on Irrigated Farms in the Northwest," available on application.

Methods of handling and feeding sheep as practiced on 12 representative farms, large and small, in various parts of the Northwest, are described in detail. On most of these farms sheep husbandry is combined with some other major enterprise, such as dairying, hog raising, orcharding, or growing sugar beets, but a few of the farmers specialize in sheep. It is believed that one or more of these 12 farmers has come in contact with practically every difficulty that is likely to confront the sheep grower on irrigated lands in the Northwest. In most cases they have found some means of avoiding, or at least of mitigating, the difficulties.

Special attention is given to methods of establishing pasture grasses and pasture supplements, as pasture is one of the most serious problems of introducing sheep on an irrigated farm. Possibilities are pointed out for combining farm sheep growing with the range sheep industry. The farmer who expects to grow grade sheep may be able to buy his ewes from the range more advantageously than elsewhere. The grower of pure-bred sheep may find an excellent market among range men for his ram lambs. A profitable combination between irrigation farmers and range men is frequently possible, the sheep being run on the range during the summer and fall, brought to the farm at the beginning of winter, and kept there until after lambing time in the spring.

The conclusion is reached that there are many irrigated farms throughout the Northwest on which small flocks of sheep could be kept with profit if given proper care. The present outlook for the sheep business appears to warrant further expansion, and there seems to be no reason why many more farmers should not keep at least small flocks. In some localities county agents and other extension workers of the United States Department of Agriculture and the State agricultural colleges are holding farmers' schools or institutes for the purpose of disseminating information relative to the sheep industry.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, H. C. TAYLOR, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, THOS. H. MACDONALD, *Chief.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, GEORGE LIVINGSTON, *Acting Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Livingston, as acting chief of the bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licenses operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, EDWY B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

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HELP FOR COTTON INDUSTRY IN AMENDED WAREHOUSE ACT

Receipts Negotiable at Banks Provided for Growers

Changes in Requirements for Federal License Assist Producers, Bankers, and Trade—How Warehouses May Qualify

To place the business of cotton warehousing on a stable basis and provide receipts for cotton that are negotiable at any bank has long been an aim of persons interested in cotton, and under the amended United States cotton warehouse act this is likely to be realized. That is the opinion of men in the Bureau of Markets, United States Department of Agriculture, who are charged with issuing Federal warehouse licenses.

The warehouse act has just been amended so as to permit the acceptance of personal bonds from warehousemen and to permit the issuance of negotiable receipts, when requested by the depositors of cotton in the warehouse, without stating the grade of the cotton. The grade must be stated, however, unless the request to omit it is made.

Creates Negotiable Receipt

The purpose of the warehouse act is to create a warehouse receipt of unquestioned value and one which will be acceptable to all bankers as security for obtaining loans, regardless of the location of the warehouse. In this way warehousemen will furnish a receipt to their customers which will be of the utmost value to them as negotiable paper, and enable them to borrow close to the actual value of their stored goods at cheaper interest rates. Thus they may market their cotton slowly and in conformity with the needs of the manufacturers. The full description of the cotton stored requested to be stated on the face of the receipt will enable the owner to know the value of his cotton and enable him to market it intelligently. The proper development of the warehouse will make possible the practice of marketing the cotton crop through the warehouse, and thus avoid the enormous losses resulting from weather damage.

Warehousemen desiring to take advantage of the opportunity extended should apply to the Bureau of Markets, at Washington, D. C., for the application forms. Upon receipt of the blanks they should be filled out and sent to the Bureau of Markets at Washington along with the nominal inspection fee required. This fee is based on the capacity of the warehouse at the rate of $1 for each 1,000 bales of its capacity; thus, a 5,000-bale warehouse will pay an inspection fee of $5; a 6,000-bale warehouse, $6, etc. If the warehouse has a capacity of less than 5,000 bales, the fee will be $5. The maximum inspection fee is $50. Thus, a warehouse having a capacity of more than 50,000 bales will be required to remit a fee of only $50. This inspection fee, a license fee of $2 and the cost of his bond is the total expense of the warehouseman. If for any reason the license is not issued or the inspection is not made, any unassessed fees will be returned to the applicant.

IN POOR MAN'S PLAYGROUND

Vacationists who follow the advice of the Forest Service, United States Department of Agriculture, to partake of the recreational advantages to be found in National Forests are well pleased and appreciative of the work which is being done for them. Here is a letter recently received from one vacationist in Idaho:

"I want to express my appreciation for the work you are doing in providing conveniences for campers in this vicinity. The camping grounds are the poor man's paradise. We spend about six weeks in the Forest every year, and I am sure that this work will be appreciated and have the approval of everyone who knows about it. This place is new to me this year, and I came here because I heard of the work you are doing, and I am passing the good word along. In time the beautiful camp grounds of Idaho will be known far beyond the borders of our State.

"The natural camping resources are practically unlimited in this section, the scenery can scarcely be excelled anywhere, and it wouldn't surprise me to see, in a very few years, pleasure seekers from every State in the Union visiting the playgrounds of Idaho."

SAFE TIME FOR SOWING WHEAT HELPS HALT THE HESSIAN FLY

Calendar Devised to Combat the Pest Brought by Mercenaries

Many Flies This Year Add Point to Warning; Working Together Essential in Preventing Damage in Community

The hired Hessians of Lord Howe's army, who bivouacked on Long Island, N. Y., in 1779, were deservedly hated and despised, for, according to popular report, they brought an obnoxious fly in the straw they used as bedding in their oversea trip. The fly subsequently played havoc with the native American grain fields. The most demeaning name which the Americans could conceive for this pest was "Hessian fly," and the winged despoiler, ravaging, plundering, and pillaging wheat, has run true to name and form ever since. During recent years this pest has collected an annual toll of approximately $50,000,000 from Uncle Sam's wheat growers. Kansas alone loses at least $600,000 a year.

Fly time is spy time for the farmer, his spying being centralized on watching for the date when his section will be free from danger from the Hessian fly, so that he can safely sow his fall grain. The Bureau of Entomology, United States Department of Agriculture, has devised a calendar of safety, which, if adhered to by grain growers in the fall seeding of their wheat, will operate as effective controls against the infestation and propagation of the Hessian fly.

Many Flies This Year

The Hessian fly is a methodical marauder which works at regular intervals, although sporadically. There was no important fly outbreak in 1917 or 1918, but the fact that there is an abundance of these flies this year brings a warning to farmers to exercise care not to plant wheat until the period of safety for planting in their locality has arrived. The last important outbreak of the Hessian

fly in this country occurred during the period from 1914 to 1916, inclusive.

Late sowing is recommended, but not too late sowing, as the latter is as disastrous in its ultimate results as is too early sowing. Uncle Sam's grain-disease doctors say that the safe date in a time of normal rainfall usually coincides, in any one locality, with the preferable time for sowing to bring maximum yield. For example, grain growers in northern Michigan are advised to sow after September 1, while the producers of southern Michigan and northern Ohio will escape fly infestation if they plant their grain about September 20. In southern Ohio the safe period is after the first week in October, while in the extreme northern part of Illinois the safe seeding season is between September 21 and 28, and for central Illinois and Indiana September 23 to 30. In extreme southern Illinois Uncle Sam recommends September 30 to October 8, while in Kentucky October 10 to October 15, in Tennessee October 15 to October 20, and in Georgia and South Carolina October 25 to November 15 are safe dates for seeding. In northeastern Kansas, October 1 to 10; in eastern and central Kansas, October 5 to 10; and in extreme southern Kansas and northern Oklahoma, as well as in Virginia near sea level, the second week in October, are recommended. October-sown wheat is also safest in Maryland, while in southeastern Pennsylvania the safety period is the last week in September.

Local Conditions Affect Dates

These times which Uncle Sam suggests as safe-seeding dates are only approximations and show in a general way about the time when the fall generation of the fly disappears in the different parts of the country. All of these periods of safety are largely dependent on the altitude, latitude, longitude, as well as local conditions; in each area under consideration. The safe date of seeding often varies in a broken and hilly country, and even on different fields of the same farm there is a variation between the calendar operations of the Hessian fly. As a rule the pest holds out longer on the southern slope of the hill, and hence the safe-seeding period is later, while it is earlier on the northern slope of the same hill at the same elevation, as at such a point the generation of flies succumbs earlier.

Fortunately the majority of the fall generation of Hessian flies appear and develop rapidly within a week or so. This makes it possible for grain growers to regulate their winter wheat-sowing operations so as to avoid loss and damage from the fly. There is no remedy or succor for the wheat crop once it is in the possession of the fly. Considerable losses to the current winter wheat crop from the Hessian fly have already been reported from the Shenandoah and Cumberland Valleys. Straw-fallen wheat due to this cause has been observed commonly in these regions by the United States Department of Agriculture, and the percentage of infestation has increased very materially during the past year. Reports received from the western half of the Mississippi Basin also indicate increased abundance of the pest.

Preventive Measures Given

Growers of winter wheat are advised to practice immediate control measures advocated by the department experts. The following eight cardinal control measures, if rigorously enforced and adhered to by every grain grower, will prevent the introduction and spread of the pest:

Do not sow wheat on stubble if possible to avoid it.

Plow under all infested stubble and ruined wheat where practicable soon after harvest, especially where this does not interfere with the growing of clover and forage grasses.

Destroy all volunteer wheat by harrowing, disking, plowing, or otherwise.

Plow all winter wheat land as early and deeply as existing conditions permit, and prepare a thoroughly pulverized and compacted seedbed.

Conserve moisture against a period of drought at seeding time.

Use the best seed procurable.

Keep the soil in good tilth and, most important of all, sow winter wheat during the fly-free period as advised by local farm advisers or State experiment stations.

Work in cooperation with your neighbor in fighting this pest, as community action is essential to insure complete success.

No "Fly-Free Wheat"

The chief food plant of the Hessian fly is wheat, next to this barley, and lastly rye. In the case of the last plant, however, it does not develop freely and it does not attack oats at all. Popular supposition to the contrary, there is no such thing as "fly-free" wheat. Most wheats will suffer when the plants are young, regardless of variety. In experimental sowing, the variety that seems to escape attack one year may suffer the next; and while the insect may prefer certain varieties over others, this all comes to naught in years of serious ravages or where the supposed distasteful variety is in a condition more satisfactory to the insect at the time the eggs are deposited. It is only in the case of the second brood of flies which occur on the more matured plants that any appreciable difference in infestation has been noted, and here it has been apparent that the ranker growing varieties, with strong, stiff straw, are the least effected. It is recommended that farmers select seed from the varieties known to do well in their locality and which are of strong vigorous growth, hardy, and with a stiff straw.

It is believed that the Hessian fly has two generations, at least during favorable seasons, over the entire area it covers in the United States. In the South the two generations are the most widely separated, while in the North, in the regions of spring wheat growing, one seems to follow the other in quick succession. Throughout the fall wheat-growing area, the fly passes the winter in the wheat mostly in the flaxseed stage. In the spring, from March in Michigan to May in Georgia and South Carolina, the flies escape from the flaxseed and deposit their eggs in the wheat, and the young from these develop from flaxseed before harvest, passing the summer in the stubble. The flies from the over-wintering larvæ come on later, and it is quite probable that some of the very earliest deposited eggs may give rise to adults at about this time. Thus, owing to this overlapping in certain seasons and in some localities, there appears just before harvest what has been considered by some experts a supplementary second generation.

In autumn the time of appearance of adults, as between North and South, is the reverse. In northern Michigan the adults of the fall generation are abroad, under normal meteorological conditions, during the last days of August and the first days of September. In Georgia and South Carolina, under the same conditions, it may be the last of November or the first of December before they have all left the stubble. The immunity of the late sown wheat from attack by flies, hence, is not due to frost, but to the fact that by the time severe frosts usually occur, most of the flies have appeared and gone.

Chickens should always be provided with fresh, clean drinking water. Charcoal, grit, and oyster shell should be placed before the fowls so that they can have access to them at all times.

A carpet sweeper or a vacuum cleaner should be used in the daily cleaning of the carpets and rugs. A vacuum cleaner operated by hand or electric power removes practically all the dust and dirt from carpets and rugs in dustless manner.

MORE DAIRY EXPORTS SHOW FIELD ABROAD FOR U. S. MEN

Figures for Last Year Indicate Big Foreign Trade

Quantities Sent Overseas in Last Fiscal Year Equals 3 Per Cent of All Milk Produced in This Country

Dairy products amounting to the equivalent of 100 pounds of milk from every dairy cow in the United States were exported during the year ending June 30, 1919, according to figures just compiled by the United States Department of Agriculture. The exports include butter, cheese, and condensed milk, but the net exports of those products in terms of whole milk amounted to 2,556,695,746 pounds, or approximately 3 per cent of all the milk produced in the United States.

Foreign Market Possibilities.

These figures, the dairy specialists of the department say, indicate the possibilities of developing foreign markets for American dairy products. They are of particular importance, as they show the trend of trade immediately following the war. Probably the greatest interest in an industry is that displayed during the time between actual war and actual peace, the specialists say, when businesses are trying to regain normal trade or acquire an advantage in their special lines. During the fiscal year 1919 the armistice was in operation the greater part of the time, only the first four months—July to November—being in the actual war period.

Much Butter Sent Abroad

During the year the exports of butter and condensed milk were increased, and the exports of cheese were decreased when compared with 1918. The total butter exports amounted to 33,739,960 pounds for the year. This is the largest amount of butter exported from the United States in recent years and has been exceeded but three times since 1850. The largest amount on record was for the year 1880, when 39,000,000 pounds were exported. The cheese exports for 1919 were only 18,794,853 pounds, which is a decrease of more than 50 per cent when compared with any year from 1915 to 1918, inclusive. The condensed milk exports for 1919 were 728,740,509 pounds. This is an increase over 1918 of 198,990,477 pounds.

The net exports of these dairy products were:

	Pounds.	Equivalent in whole milk (pounds).
Butter	29,608,491	621,778,311
Cheese	16,352,547	163,525,470
Condensed milk	708,556,786	1,771,391,965
1919, net exports in terms of whole milk	.....	2,556,695,746
1918, net exports in terms of whole milk	.....	1,929,000,000

It is noticeable that the butter exports fell off in May and June each year, as the butter made during those months is used largely for storage. While the exports of butter for 1919 were practically doubled the imports also were doubled, and amounted to 4,131,469 pounds. The cheese exports were not heavy for any month of the year, the largest amount being for July, 1918, which reached 5,656,901 pounds. The imports were also greatly reduced, being only 2,442,306, the lowest since 1878.

Milk in Bigger Volume

The condensed and evaporated milk showed a continued and material increase throughout the year. The increase was greatest during May, June, and July. In June there were exported 114,835,626 pounds, which was greater than the total for any year prior to 1916. The imports of condensed milk continue, but were reduced from 29,000,000 pounds in 1918 to 20,183,723 pounds in 1919. Fresh milk amounting to 2,591,553 gallons also was imported during the year.

CONCENTRATED CIDER WILL KEEP SWEET INDEFINITELY

Sweet cider, rendered commercially possible the year around by concentration, looms up as a healthful oasis in the arid desert of national prohibition, and opens a profitable outlet for windfall apples, say the specialists of the Bureau of Chemistry, United States Department of Agriculture.

They have developed a process for concentrating sweet cider which consists essentially of freezing the fresh apple juice, grinding the frozen product, and then by means of a centrifugal process, separating the essential cider solids from the frozen water, in much the same way that cream is separated from milk. Five gallons of cider can be reduced by this process to one gallon of sirupy cider concentrate. This cider concentrate, being so much less in bulk, can be shipped and stored much more economically than the bulky fresh cider. It is also easier to keep sweet when concentrated. When it is desired to use the cider concentrate it can be restored to its original bulk, condition, and flavor simply by the addition of ordinary drinking water.

Concentrated cider will keep sweet much longer than in its original condition, and in cold storage it will keep sweet indefinitely. Its reduced bulk makes it practicable to keep it in cold storage. The concentrated product thus promises to make fresh cider available at soda fountains throughout the summer months.

This product, to be profitable, should be made on a fairly large scale, and preferably in connection with a commercial ice plant located near an apple section. Since the cider season is short it is doubtful whether it would be profitable to erect a refrigerating plant solely for the purpose of freezing the cider. As a by-product or side line to a regular ice plant the cost of the process would be reduced materially, as the cider-making season comes at the very time when the demand for ice is greatly diminished by the approach of cold weather. As the concentrated cider has not yet been marketed on a commercial scale, those proposing to undertake the process should first satisfy themselves that they have a ready and convenient outlet for their product.

Detailed information regarding the process and the machinery necessary will be furnished upon application to the United States Department of Agriculture, Washington, D. C.

GOOD COVERS FOR HAYSTACKS

High prices of hay makes it essential that farmers top off their haystacks with proper covers for protection of the dry forage against weathering. A cheap and simple cover for any stack or rick of hay may be made by spreading a layer, about four inches thick, of some coarse grass, such as millet, sudan grass, fine sorghum, or some coarse wild grass over the top of the stack or rick, placing long poles over the hay, and then binding these poles permanently in place by the use of wires weighted down at both ends. Where the hay is stacked out of doors in oblong ricks, a satisfactory cover may often be made by using 12-inch boards 1 to 1½ inches in thickness, cut as long as the rick, which may be wired together and lapped like shingles to form a satisfactory cover over the hay. Some farmers have been successful in using crimped galvanized roofing or corrugated roofing with the edge bent to interlock in the same manner as a protection for hay-ricks.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

JULY WOOL CONSUMPTION BIGGEST OF THIS YEAR

Although the June figures for wool consumption broke all records for 1919, the July figures exceed them 8,000,000 pounds, according to the monthly wool-consumption report issued by the Bureau of Markets, United States Department of Agriculture. The total amount of wool used during July—63,000,000 pounds, grease equivalent—is almost three times the amount used in February of this year. However, this is 2,000,000 pounds short of the consumption in June, 1918.

July consumption represents an increase of 15 per cent over the amount used in June and 21 per cent over the amount used in May. Monthly consumption of wool has increased steadily since February, indicating that manufacturers have completely readjusted themselves to peace business.

Total amounts of wool used during July, by condition, in pounds, were: Grease, 45,213,307; scoured, 7,485,323; pulled, 2,274,463.

FOOD AND DRUG OFFENSES PUNISHED IN 100 CASES

Notices of judgment covering 100 actions under the Federal food and drugs act have been issued recently in the service and regulatory announcements of the Bureau of Chemistry, United States Department of Agriculture. These actions were based upon charges by the Government of adulteration or misbranding, or both, of foods, drugs, medicines, and stock feeds. The fines imposed by the courts ranged from $10 and costs to $500 and costs. In some instances adulterated foods which had been seized by the Government because they were filthy and decomposed were ordered destroyed by the courts. In other instances, where only part of the seized shipment was spoiled, the courts ordered the sale of the good portions and the destruction of the adulterated food.

The products upon which the larger number of actions were based were spoiled eggs, decomposed tomato products, milk which was contaminated or watered, spoiled powdered milk, adulterated condensed milk, stock feeds, including cottonseed meal containing less protein than was claimed on the label, and drugs below the required standard.

Other cases were based upon adulterated or misbranded pork and beans, brandy, camphor, candy, salmon, sardines, gelatin, oats, sassafras oil, peaches, apples, cider, lemons, olive oil, oil of birch, peas, prune butter, vinegar, and mineral water.

Copies of Bureau of Chemistry Service and Regulatory Announcements Supplements Numbers 58 and 59, which contain the notices of judgment, can be obtained upon application to the United States Department of Agriculture, Washington, D. C.

QUICK RESULTS OBTAINED FROM TICK-KILLING LAW

Orders issued by the United States Department of Agriculture authorize the release on September 15 from Federal quarantine against the cattle-fever tick of Blount, Clay, Cullman, Etowah, and Randolph Counties and a portion of Marshall County, Alabama.

This order marks the first release of territory from the cattle tick quarantine in 1919. Releases usually are announced as effective on December 1, but it has been determined that the amount of tick infestation in the counties named has been reduced to such a small percentage that the Federal authorities decided that it is unnecessary to hold them under further restriction. The tick infestation that remains will be looked after by local quarantines maintained by the State and county authorities.

The release of these counties also marks the first tangible result from the operations of the Alabama State-wide tick eradication law which became effective last spring. Active dipping under this law has been in progress less than six months, but it has been so effective that these counties, even in such a short time, are regarded as in position to be relieved from 100 per cent dipping.

It is expected that with continued active work during the rest of the dipping season nearly all the other Alabama counties will be released from quarantine on December 1 of this year.

"CIDER VINEGAR" MUST NOT BE MADE FROM LEAVINGS

The term "cider vinegar" should be applied only to the product made from fermented apple juice, and it is not permissible to use this name for the product made from chops and dried skins and cores by the process of soaking and subsequent fermentation, according to a recent ruling of the Bureau of Chemistry, United States Department of Agriculture, which reaffirmed the position taken previously by the department in Food Inspection Decision 140, relating to the labeling of vinegars.

This decision was made in reply to certain manufacturers who requested permission to label their product, made from dried or evaporated apple products, as cider vinegar, claiming that their product was equal to or superior to the article made from fresh apple cider. The Bureau of Chemistry does not question the wholesomeness of such a product, if made from clean, sound material, but holds that the purchaser should be informed as to the nature of the material from which it is made.

CROOK FOREST ENLARGED

The President has signed a proclamation adding 29,440 acres to the Crook National Forest, Ariz. The lands added are located in the Winchester Mountains and southeast of the Galiuro division of the Crook forest. They are rough and broken in character and are not suitable for agricultural purposes. Practically the entire tract is covered with a stand of oak, juniper, and cedar timber of fair quality. Considerable of the area along Pine Canyon is covered with a good stand of western yellow pine.

BALING TIES BOUGHT CHEAPLY

Through the efforts of the farm bureau office of Eddy County, N. Mex., baling ties were obtained at an actual saving of $450. The orders were pooled and placed through a local store. In addition to the above saving, prices charged by other dealers dropped from $1.75 to $1.30 a bundle. Plans are being formed for the purpose of ordering apple boxes in carload lots.

How Tons of Fruit Became Apple Butter That Won Real Praise at Army Hospital

"There are grapes and apples going to waste down here by the cartload. What can we do to save them?"

This was the message which reached the home-demonstration agent of Clarke County, Wash., over the long-distance telephone in her office at Vancouver one afternoon in the late fall. Home-demonstration agents make it their business never to be "stumped," so the reply went back, "Hold the fort and I'll be down early in the morning to help you lay your plans. I guess the good Lord must intend that fruit to go to the boys at the post hospital here in Vancouver, and between us we must see that it reaches them."

The following day the little town of Fisher was deep in planning. When the home-demonstration agent, who works under the supervision of the United States Department of Agriculture and the State agricultural college, arrived a council of war was held. The outcome was that the Grange offered to lend its big kitchen for the work, while the Red Cross promised to supply the workers and pay for the first 100 pounds of sugar needed.

One committee scoured the town for utensils necessary to make cartloads of grapes and apples into fruit butter and returned triumphant with two big oil stoves to supplement the range at the hall. There were also several autos loaded with knives, spoons, sieves, dishpans, pots, and stone crocks. Meanwhile another committee was scouring the Grange kitchens, sweeping the dining rooms, and spreading down clean papers in preparation for the grand opening of the Fisher community kitchen the next day.

Community Kitchen Opens Doors

The next morning it rained a regular downpour. But did that delay the opening? It did not. By 8 o'clock a dozen women and three men and the first consignment of fruit were at hand. The men kindled the fire, brought in a good supply of water in milk cans and started out after more fruit. The women rolled up their sleeves, tied on their big aprons, and set to work. The home demonstration agent had planned so carefully that after the first confusion died away there was only the quiet hum of orderly work.

Each operation was in charge of a squad. The hottest and most responsible position, of course, was that of stirring the butter to make sure it did not burn as it got thicker and thicker and more and more sugary. At this nerve-racking job, delegates who had the entire confidence of the assembly took turns, and it was only occasionally that a mere worker was able to dilate the nostril of scorn and remark, "I smell your jam burning."

Grape and apple butter made out of Washington's luscious grapes and rich juicy apples, the kind the people in the East stop and stare at in the store windows, once tasted is something to remember forever. The grapes were so sweet that by combining them with the apples the demand on the sugar barrel was very light. At noon the old Grange coffee pot came out and when the men returned wet, but undaunted from gathering the fruit, they all sat down at the long table in regular Grange fashion.

For seven days this was the program. Even on Sunday the kitchen was worked to its full capacity for no one seemed to think it was breaking the Sabbath to save that fruit for the boys at the post hospital.

Three Tons of Fruit Into Butter

At the end of the seven days a ton of grapes and two tons of apples had been rescued and converted into fruit butter for the hospital. Thanks to the natural sugar in the Washington grapes, only 143 pounds of sugar were used for this whole quantity.

And what was the report of the fruit butter made by the boys at the hospital who sampled it? They said, "This certainly tastes like home and we can not afford to die of the 'flu' if living means such eats as these."

The work of the kitchen at Fisher was so successful that within a week the home demonstration agent was called upon to organize three other kitchens of this type where the same sort of salvage work for fruits could be carried on. Good organization makes these community enterpises successful, and it is not surprising that the women in that community feel that the service of the home demonstration agent is a worthwhile investment for their country.

"EGG SUBSTITUTES" FRAUDS; MANUFACTURERS PROSECUTED

The so-called egg substitutes which, under various trade names are being sold to housewives, will in no sense take the place of eggs in baking or cooking, say the specialists of the Bureau of Chemistry, United States Department of Agriculture. They have analyzed and made baking tests with most of the preparations which are claimed by manufacturers to do the work of eggs.

These preparations are sold usually in small packages containing from 1 to 4 ounces and priced at from 10 to 35 cents a package. It is claimed that each package will take the place of from 12 to 48 eggs. If these preparations would take the place of or do the work of even 1 dozen eggs, their purchase would help to reduce the high cost of living, but unfortunately for those who are misled by the alluring claims on the labels or in advertisements, they do not do the work of eggs in baking or cooking.

Cost More Than Worth

The average price paid by the consumer for the so-called egg substitutes is approximately 6 cents an ounce or at the rate of about $1 a pound. Since these products consist essentially of starch or a powdered cereal product such as wheat flour, sometimes artificially colored yellow to imitate the appearance of eggs, the consumer pays a price far in excess of their food value or intrinsic worth.

Baking tests showed that cakes made with these so-called egg substitutes are inferior to cakes made with water in place of the substitute, otherwise using the same recipe, are not nearly so good as cakes made with milk, and in no measure are comparable with cakes made with eggs. There is no doubt, say the specialists, that most of these products do not really resemble eggs, neither can they take the place of eggs in baking and cooking, and further they do not serve any purpose in baking and cooking which is not equally served by the ordinary products daily used in the household.

A distinction should be made by the consumer between dried egg preparations, dried egg powders, and the like, which consist entirely or mainly of real eggs in powdered form, and the so-called egg substitutes which contain little or no egg in any form. Real egg powders, properly prepared, will answer most purposes of shell eggs in baking and cooking.

Prosecutions are now pending in the Federal courts against manufacturers of a number of the so-called egg substitutes on the charge that the preparations are misbranded under the terms of the food and drugs act. Inspectors have been instructed to watch interstate shipments of such preparations and take appropriate action in cases where misbranding is found. The Federal food and drugs act does not apply, however, to preparations made and sold wholly within the State.

Big Month in Cattle Fever Tick Fight Gives Hope for Much Progress in 1919

Complete reports to the Bureau of Animal Industry of the United States Department of Agriculture from all the tick-infested States show that in July the number of dippings of cattle to exterminate the cattle fever tick reached the big total of 7,219,037. While this total is comparatively big, it is about 400,000 less than the record for May. This is accounted for by the fact that dipping of cattle is being discontinued in some localities which were released from Federal quarantine and where the final clean-up work is practically completed as a result of early work this dipping season.

Progress Good in All States

Tick eradication generally is progressing satisfactorily in all of the States with the exception of six counties distributed in four States, according to statements of the Federal authorities. The six counties mentioned had been released from quarantine, but it has been found necessary to requarantine them until the local courts and county officials show a disposition to cooperate properly with the State and Federal Governments in the final clean-up work. It is the belief that county courts and other officials will soon realize that a discontinuance of their efforts to complete the work is very expensive, not only to the county but to individual cattle owners, in that it is necessary practically to repeat the work and incur at least the same expenses as when tick eradication was first taken up in the county.

Under normal conditions, when all cattle in a community are dipped regularly, tick eradication should be completed within seven to eight months, but in many counties irregularities which can not be foreseen occur, with the result that ticks continue to exist in some herds or some pastures or ranges at the close of the dipping season. It is to meet these irregularities that local quarantines are placed on some herds or pastures in order that the balance of the county or other adjacent territory released from quarantine may not be exposed to reinfestation.

Big Releases Forecast

According to present indications, a large amount of territory will be released from Federal quarantine on December 1—perhaps enough to make 1919 the greatest year in the entire history of this campaign against the insect enemy of the Southern live-stock industry. Following are the number of dippings by States in July:

State.	Number of dippings.
Alabama	1,045,427
Arkansas	686,799
Florida	227,260
Georgia	519,444
Louisiana	1,405,535
Mississippi	370,284
North Carolina	6,963
Oklahoma	574,649
South Carolina	158,208
Texas	2,224,468

PLOWING, NOT RE-SEEDING, FOR POOR ALFALFA SODS

It is practically impossible to try to make an old alfalfa field look like new by attempting to sow more seed after disking or cultivating in the fall. Thousands of dollars' worth of seed are annually wasted in unsuccessful attempts to revive the waning stand of alfalfa. Specialists of the United States Department of Agriculture recommend that fields on the decline should be plowed up and reseeded.

Even though the seed germinates successfully, the plants mature at periods different from those of the old plants, while ordinarily the young plants are smothered out before they make much growth. Even where an alfalfa field is patchy and covered with practically bare spots, it is not advisable to attempt to re-seed except by breaking up the entire field and again sowing down with alfalfa.

It is always questionable, according to the specialists, to cultivate or disk an alfalfa field irrespective of its age and condition, as carefully conducted experiments have shown that the only section in which it was profitable to cultivate the alfalfa crop in any way was in the irrigated belt of the Far West. Usually, unfavorable results attend where alfalfa is disked under eastern conditions, although in the case of alfalfa fields which have been badly infested with weeds, it has been the practice of many growers to disk after the alfalfa has been cut, with the disks set nearly straight.

The best plan, where the alfalfa sod is beginning to show the ravages of wear, is to plow up the field and devote it to some cultivated crop, such as corn, for one or two years, and then to reseed it to alfalfa after preparing a proper seed bed, liming the soil if necessary, properly inoculating the soil or seed, and sowing the seed early enough in the fall so that the crop will establish a vigorous root system and produce sufficient growth to weather the winter successfully.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 30, 1919:

Sheep on Irrigated Farms in the Northwest. Farmers' Bulletin 1051.

The Loco-Weed Disease. Farmers' Bulletin 1054.

Country Hides and Skins. Farmers' Bulletin 1055.

Stomach Worms in Sheep: Prevention and Treatment. Department Circular 47.

A Report on the Retail Prices of Unmixed Fertilizer Material as of June 1, 1919, with Comparative Prices for May 1. Department Circular 57.

Brood Coops and Appliances. Department Circular 13.

Management of Growing Chicks. Department Circular 17.

Directory of Officials and Organizations Concerned with the Protection of Birds and Game, 1919. Department Circular 63.

Thrift in Lighting. Thrift Leaflet 9.

Thrift in the Choice, Use, and Care of Kitchen Utensils. Thrift Leaflet 10.

Thrift in the Use of Fuel for Cooking. Thrift Leaflet 11.

Saving Fuel in Heating. Thrift Leaflet 12.

Saving Food by Proper Care. Thrift Leaflet 13.

Inexpensive Ways of Keeping Food Cool. Thrift Leaflet 14.

How Shall We Choose Our Food? Thrift Leaflet 15.

The Weekly Market Basket. Thrift Leaflet 16.

Thrift on the Farm. Thrift Leaflet 17.

Business Methods for the Home. Thrift Leaflet 18.

Teaching Thrift to Your Children. Thrift Leaflet 19.

Thrift Standards for Boys and Girls. Thrift Leaflet 20.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Saving is not a dull duty. It is a ticket to the land of prosperity. Buy War Savings Stamps.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Must Mark Weight on Meat.

Wrapped meats inclosed in paper or other material, including hams and bacon, coming within the jurisdiction of the Federal food and drugs act, must be labeled to show the net weight of each package, by the provisions of an amendment to that law incorporated in the Agricultural appropriation act for the current year.

The food and drugs act requires that the quantity of food in package form coming within its jurisdiction must be plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count. Wrapped hams and bacon previously were held not to be food in package form within the meaning of the act, since they are not of uniform size and are sold by the pound by actual weight and not by a fixed price for each package as are most foods in package form.

Congress now has specified definitely that from the date of the passage of the amendment, July 24, 1919, a statement of the net weight will be required on all wrapped meats, including hams and bacon, coming within the jurisdiction of the Federal food and drugs act.

More Jelly With Less Fruit and Sugar.

To obtain the largest possible amount of jelly from fruit with the use of the smallest possible amount of sugar, follow the directions given below by United States Department of Agriculture specialists:

If a good jelly-making fruit, such as quince, green grapes, tart and partly ripe apples, Siberian crabs, or cranberries, is being used, make a second extraction from the fruit. That is, take the pulp from the jelly bag, add one cup of water to each pound of pulp, cook 20 minutes, and drip a second time, using some pressure at the last. Second-extraction jellies are likely to be somewhat different in flavor from the first, and it is an excellent plan to combine the two juices before sweetening.

When fruit is cheap and sugar expensive, jellies may be made to advantage with one-half as much sweetening as usual, that is, with one-half cup of sugar to one cup of juice. The yield of jelly will be less, for one cup of a good juice plus one cup of sugar should make between one and one and one-half cups of jelly, whereas one-half cup of sugar plus one cup of juice makes between one-half cup and three-fourths cup of jelly.

One-half of the sweetening may be glucose sirup, light-colored corn sirup, honey, or sorghum sirup. If the other half is granulated sugar, there will be little noticeable difference in sweetness in most cases. Grape with glucose or corn sirup will make a good jelly even when no sugar is used.

Crop Reporters in Convention.

Men with similar interests find it pays to get together and talk over their common problems. Hence, the annual conventions of all sorts of organizations. But a meeting in Columbus, Ohio, on August 28, was out of the ordinary. Most of the voluntary crop reporters of Ohio—there are about 2,500 of them—gathered in response to invitations from the management of the Ohio State Fair, and they discussed many things—not from cabbages to kings, exactly, but from cabbages to wheat and other crops. The voluntary crop reporters do not work for salaries, but solely for the service they can give to their State and the rest of the country by telling what is what in agricultural production. They paid their own expenses to Columbus for the same object. They were addressed by the Ohio commissioner of agriculture and by the chief of the Bureau of Crop Estimates of the United States Department of Agriculture. Ohio is one of the 15 States whose crop-reporting organization have policies of close cooperation with the Federal Government.

The Columbus meeting was the second State gathering of crop reporters. The first was held last year in Missouri. Such meetings, it is believed, do a great deal toward maintaining the crop-reporting morale, the high quality of which is evidenced by the fact that the reporters do their work year after year with no other reward than the consciousness of public service.

Cooperation in Food and Drug Control.

The cooperation of all agencies interested in foods and drugs is extremely important in the enforcement of the Federal food and drugs act, in the estimation of the United States Department of Agriculture. A statement just issued from the Office of Cooperation, Bureau of Chemistry, says: "Wherever the representatives of this bureau recognize this fact, there will be found a thorough food and drug control, for the agency that recognizes the value of such a source of information is usually in touch with every other source of information. One of the most efficient station chiefs in the bureau is a man who, in less than two years, has established a personal and working acquaintance with nearly every city and State official in his territory, from executive officers down, as well as with the local representatives of the Bureau of Markets, the Bureau of Fisheries, the Bureau of Internal Revenue, War Department, Department of Justice, Post Office Department, and trade organizations."

Decrease in Lumber Cut.

The lumber cut of the United States in 1918 was 29,362,020,000 feet, as reported to the Forest Service up to June 15 by 14,753 mills. The complete total cut is 31,890,454,000 feet, based on the assumed operations of 22,546 mills. The computed cut in 1918 is 11 per cent smaller than the computed production in 1917.

A comparison of the computed cut of several of the larger general producing regions in 1918 with the figures for the preceding year shows a smaller output by approximately 20 per cent in the yellow-pine group of States, a decrease of 19 per cent in the North Carolina pine group, and of 9 per cent in the Lake States. An increased cut of 2 per cent is noted for Oregon and Washington.

Better Sheep for Louisiana.

Louisiana agricultural agents, working under the United States Department of Agriculture and the State agricultural college, plan much work in efforts for sheep improvement. They intend to work for continued introduction of pure-bred rams, earlier marketing of lambs, grading and cooperative selling of wool, control of animal diseases, stimulation of forage crop production for sheep, and promotion of better systems of raising goats. One

county agent reports that the farmers of his section were not familiar with dipping goats to rid them of lice. Through his activity approximately 1,500 goats were dipped at great profit to the owners, and since this control measure has been practiced excellent results in goat raising have been obtained.

Aerial Fire Patrol Extended.

The airplane forest fire patrol conducted in the National Forests in California by the Army Air Service in cooperation with the Forest Service of the United States Department of Agriculture has been extended to cover a portion of the forests in Oregon. Headquarters have been established at Salem, Oreg., and the operating squadron for the present will consist of five officers and seven enlisted men operating eight airplanes. The city of Portland has donated a landing field and will construct a hangar. Patrol routes in the Oregon and Santiam Forests are now being worked out.

One of the Army aviators in the fire-patrol work recently made a successful flight to the floor of the Yosemite Valley. To make a landing the aviator had to gain an altitude of 11,000 feet and spiral down between the walls of the canyon, which are 5,000 feet high and a quarter of a mile apart. The landing was difficult because of high trees and wires. This exploit was of much interest to Forest officers, as it is thought to have been a step toward the more extended use of airplanes in the Forests, where landing places in the mountains are comparatively few.

Woman Cans to Buy Improvements.

"Don't grumble because you haven't conveniences and improvements in your home. Get busy canning and buy them."

This is the advice a member of one of the Florida home clubs gives to any woman who wants to better her home and who hasn't the money. What gives the advice weight is that this Orange County member practices what she preaches. Two years ago she learned to can. The home demonstration agent of the county taught her how to put her products in jars so they would look attractive, have a delicious flavor, and keep well. That year with the profits made from her canning she bought a gasoline engine, which is used to furnish power for the water system and to run the washing machine.

1918 she sold 2,000 large cans of tomatoes to a West Palm Beach grocery and added two more rooms to her home. She then bought paint and applied it herself, inside and outside the house. This year she has a standing order for 4,000 cans of tomatoes, and she plans still greater improvements in her home. During this time she has also kept her own pantry shelves well supplied.

Paper From Cotton Hulls.

As a result of experiments conducted by the Forest Products Laboratory, United States Department of Agriculture, a good grade of paper is being produced in commercial quantities from cotton-hull fiber. Pulp made from second-cut cotton linters and hull fiber, the forest specialists say, is well suited for the manufacture of book, writing, printing, blotting, cover, and other high grades of paper, and is equal in quality to the highest grades of paper stock.

Sheep Marketing Is Systematized By Many Raisers in Louisiana

Sheep raisers in Pointe Coupee Parish, La., have systematized their marketing operations by reducing the size of their flocks at regular intervals. Each plantation manager has determined just how many sheep he can carry at a profit without needlessly exposing the flock to disease. As each flock increases, the surplus stock is sold so as to keep the number within the limit that has proved to be profitable.

Formerly some Louisiana sheep owners practiced aimless carrying of flocks of sheep without systematic marketing of the normal increase, irrespective of the conditions of the market, the prices of feed, and the prices of fat lambs. They have learned through the activities of the county agents that there is a harvesting time for every farm crop, which, if it is not harvested at the proper period, goes to waste. On this basis the time for the Louisiana lamb harvest is in April and May, and the lambs should be disposed of in the spring and not carried through the summer.

Where the lambs are sold in the spring they leave the plantations before the worm and parasite season begins. Also, the sheep ranges are not damaged by being overstocked with an excess of young stock.

PICNIC STRENGTHENS COOPERATION

When the three farmers' organizations of Sussex County, Del., recently held an annual picnic on the seashore at Oak Orchard, in southern Delaware, the event marked the beginning of closer cooperation between the farm bureau, Pomona Grange, and producers' associations. A live farm bureau organization of 815 members is working, with 18 organized communities, 16 subordinate granges, and 12 local producers' associations, with a membership of 1,500. The day was enjoyed by 800 farmers, their families and friends, and all agreed that a picnic of this kind should be an annual event.

MORE MONEY FROM POTATOES

When local buyers in Rapides Parish, La., offered from $1 to $1.25 a hundred pounds for Irish potatoes the agricultural agent thought such prices were far too low, so he induced four potato growers of the parish to market their produce on the cooperative plan. A shipment was sent to Chicago, where the potatoes were sold for $4.65 a hundred pounds. This, the agent believes, will be an eyeopener for the farmers in that section, and he is of the opinion that in the future many growers will market their products cooperatively.

SUPPLYING GREEN FEED FOR POULTRY IN WINTER

If the best results are to be obtained with poultry they must be furnished with a plentiful supply of green feed. Where fowls have unlimited range on a farm they will secure green feed during the spring, but during the winter it must be supplied for them. The question of how to supply the best feed at the least cost is one that each poultry keeper must decide largely for himself. It will probably make but little difference what kind of green feed is supplied, provided it is relished by the fowls. Cabbages, turnips, beets, potatoes, etc., are suitable for this purpose. The larger roots and the cabbages may be suspended by means of a wire or string, or they may be placed on the floor, in which case it would be well to split the turnips or beets lengthwise with a large knife. Potatoes and turnips should be fed cooked. The mangel is an excellent root for feeding raw. Cut clover soaked in boiling water fed alone or with the mash is good. Clover meal and ground alfalfa make very good feeds for this purpose. Where the fowls are yarded and not enough green feed is furnished by the yard, a small patch of clover, alfalfa, or rape may be sown. Any one of these, if frequently mowed, will furnish a great quantity of green feed in a form which is relished by the fowls. Canada field peas may also be sown for this purpose, and when fed in a tender, crisp condition are eaten readily.

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SILO-FILLING TIME IS NEAR; ARE YOU PREPARED FOR IT?

Owners Should See that Their Structures Are Serviceable

Proper Protection for Interior Emphasized by Department Specialists; Good Tramping Prevents Air Pockets and Decomposition

Corn-canning time—that period when a portion of the corn crop is prepared and sealed in the silo—will soon be here. Every silo owner should see that the structure is in best condition to receive the succulent corn crop.

As the farmer gives the silo the thorough "once over" he must look out, first of all, for proper protection for the interior, according to United States Department of Agriculture specialists. The annual application of a mixture of coal tar and creosote, both inside and outside, adds greatly to the life of a wood silo, as it protects the wood against decay. The coal-tar creosote solution is relatively inexpensive and the cost of treating the silo with this material is so slight that no silo owner should allow his silo to stand without this protection. It is also essential that he tighten loose hoops in order that no cracks or crevices allow air seepage. If the hoops have been kept tight, however, during the period that the silo is empty, they should be loosened just before filling to prevent buckling or breaking of hoops due to swelling when the dry staves absorb moisture from the green silage.

Look For Cracks in Old Silos

In the case of wooden silos it may be advisable to cement around the bottom of the silo where the foundation joins the superstructure. In the case of old silos it will be profitable for the farmer to go over them carefully to look for cracks and wherever he finds them to seal with tar and oakum, wood filler, or other effective material. If the bottom of the silo has decayed slightly, the owner may saw off whatever amount is necessary, and then, by the use of blocking, gradually lower the silo to the foundation again, cementing around the base as previously described.

When the silo is air-tight and able to stand the most rigid inspection, the owner may consider the actual work of filling. A wise precaution is to place several feet of straw in the bottom of the silo to act as a protective blanket between the bottom of the silo and the feed, as ordinarily silage juices collect there unless proper facilities for drainage are provided and the straw acts as a valuable absorbent for this excess of moisture which otherwise might damage the bottom silage.

Must Tramp It Down Well

In the actual operation of filling the silo it is of paramount importance that no air pockets be left; this is prevented by sufficient tramping. It depends largely on the diameter of the silo how many men should be used to tramp the ensilage,

(*Continued on page 2.*)

FARMERS' PRICES AND MANUFACTURERS' PRICES.

David F. Houston, Secretary of Agriculture, does not assent to the theory that the prices of farm products should fall before the prices of manufactured commodities fall. He makes this clear in replying to a recent communication in which it was stated that "There must be a drop in prices before there is a drop in wages, and it would seem that the farmer is the man who is going to be first hit."

This theory has been advanced by a number of manufacturers, said the Secretary, who continued, "It is clearly an unjust contention. It manifestly would not do to ask farmers to produce, buying everything that they have to buy from manufacturers at high prices, with the assurance to them that their products will fall in price, and that then manufacturers will consider what they will do with reference to their own prices. Obviously, manufacturers must be willing to make at least a contemporaneous decrease in their prices. It might even be contended that they should make a prior decrease in their prices, since the farmer's operations involve a year and he could not recoup for 12 months, or could not recoup at all, because, on the theory put forth, his products would fall in price. It seems to me that business men must be brought to realize that if we are to get back to the normal they must set about immediately to do their part, and unquestionably profiteering in manufactured products must be eliminated.

"Of course, everything possible will be done to enable the farmer to produce more economically, so that if prices do fall he will not sustain a loss, or so great a loss. All the efforts of the Department of Agriculture and of the land-grant colleges have this aim. They are trying to bring about better methods of cultivation, better financing, better marketing, the elimination of plant and animal diseases and insect pests, and the better utilization of labor. Much has been done in this direction and more will be done as time passes."

GREEN CLOVER WORM BECOMES WORST TRUCK-CROP DESTROYER

Common Insect May Repeat Heavy Attack Next Year

Control Measures Given For Use in Stopping Further Great Damage; New Brood, Second of Year, Due in Early Fall

The green clover worm—one of the commonest insects prevalent throughout the eastern half of the country from early spring until early fall—has been the champion truck-crop despoiler of the 1919 season, announces the United States Department of Agriculture. This clover worm, usually prevalent in considerable numbers, but heretofore not aggressively disastrous to truck crops, went on a rampage about the middle of the summer, attacking beans, and particularly soy beans and lima beans, along the Atlantic coast line from Boston, Mass., to as far south as Raleigh, N. C., and as far west as Wisconsin.

No explanation of the outbreak has yet been arrived at by the Federal authorities. Although this moth is among the most common, it previously has not been hazardous to truck-crop success, although it has damaged alfalfa heavily in certain sections of the country, while, at various times, it has attacked clover, soy beans, cowpeas, vetch, strawberry, and blackberry plants.

There are at least three broods of green clover worms each year, while four generations may occur. Fortunately there are upward of half a dozen natural enemies which prey on the moth and usually accomplish such valuable police work that the pest is not critical. One of the most active of the parasites which protects truck and forage crops from the green clover worm is a fungous disease which now is most prevalent in Maryland.

Department specialists fear that the green clover worm outbreak may occur

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again in 1920, as it is common for infestations of this character to run for two consecutive years. On this account the Government representatives recommend the use of an arsenical poison as an effective control for these worms wherever they occur in any number. The best remedy consists of a mixture of 1 to 1½ pounds of powdered arsenate of lead, which is mixed with 50 gallons of water or a similar amount of Bordeaux mixture and sprayed carefully over the infested foliage. The foliage of beans is very delicate, hence this solution should never be used at full strength for such spraying work, it ordinarily being the practice to use about 2 pounds of the arsenical mixture outlined above with a similar amount of the diluent.

A new generation of the green clover worm emerges in late summer and early fall, although it is not now known whether the new brood will be as bad as the first one of the current year. It is anticipated that the worms will work principally on beans, late peas, and clover. The worms have been very abundant on soy beans, but the recent season has been favored with cool, moist weather, which has enabled the plants to recuperate rapidly from early injury, to the extent that they will probably yield a fair hay crop despite their enemies.

Attacks Made on Alfalfa

The green clover worm is a common-place pest which is prevalent every year on clover and some related plants, but which rarely accomplishes such serious damage as to justify control measures. Several years ago this worm, which apparently is a "wanderluster" that jumps sporadically from one crop to another, centralized on alfalfa in the vicinities of Wellington, Kans., Elk Point, S. Dak., Charleston, Mo., and in middle and eastern Tennessee. Apparently the natural enemies of the worm were so seriously reduced in these localities that the caterpillar rambled along its voracious way unmolested, with the consequence that much alfalfa hay was sacrificed.

This infestation of alfalfa was controlled by regulating slightly the time of cutting in order to mow the field while the insect was in the caterpillar or "worm" stage of growth. Its presence was indicated by a ragged appearance of the alfalfa, caused by the feeding of the caterpillar, the abundance of caterpillars on the plants, and the large numbers of dark moths which were present, and which dart up in great numbers as one walks through the fields. Eggs laid by the moths hatch quickly, and the caterpillars feed on the host plants for three weeks or longer before passing to the ground to pupate.

In controlling alfalfa infestations it is essential to mow the field from 10 days to 3 weeks after the caterpillars have appeared in great abundance and to cut the entire field closely and leave it as clean and bare as possible. Such management removes the food supply of the caterpillars and any shelter protecting them from the direct rays of the sun, thus hastening their destruction. On account of the wide range of food plants available to this caterpillar, ditch banks and fence rows should be kept free from weeds. Close and clean cutting also will help to destroy any other larvæ of moths in the field, and has been recommended in the control of the alfalfa caterpillar. Where these measures can not be carried out without injury to the alfalfa, either from premature cutting or a too prolonged delay, it is advisable to wait until the alfalfa is ready for another cutting. Growers, by these measures, should be able to clear the fields of this insect before the summer has passed.

Throughout the Eastern States premature cutting often results in permanent injury to alfalfa, particularly where it is young, and on this account the cutting of the crop much in advance of the normal period is not recommended for that region. The caterpillars have also been caught easily by dragging a field with a hopperdozer, such as is used for grasshopper outbreaks. As this device does not injure the alfalfa when not used to excess, and as it will catch many injurious insects, such as grasshoppers and leafhoppers, it may be used to advantage in infested fields.

WHAT IS BREEDING?

The following definitions have been adopted by the United States Department of Agriculture for use in the "Better Sires—Better Stock" campaign which it will conduct in cooperation with the various States, beginning October 1:

Purebred: A pure-bred animal is one of pure breeding, representing a definite, recognized breed and both of whose parents were pure-bred animals of the same breed. To be considered pure-bred, live stock must be either registered, eligible to registration, or (in the absence of public registry for that class) have such lineage that its pure breeding can be definitely proved. To be of good type and quality, the animal must be healthy, vigorous, and a creditable specimen of its breed.

Thoroughbred: The term "thoroughbred" applies accurately only to the breed of running horses eligible to registration in the General Stud Book of England, the American Stud Book, or affiliated stud books for thoroughbred horses in other countries.

Standardbred: Applied to horses, this term refers to a distinct breed of American light horses, which includes both trotters and pacers which are eligible to registration in the American Trotting Register. Applied to poultry, the term includes all birds bred to conform to the standards of form, color, markings, weight, etc., for the various breeds under the standard of perfection of the American Poultry Association.

Scrub: A scrub is an animal of mixed or unknown breeding without definite type or markings. Such terms as native, mongrel, razorback, dunghill, piney woods, cayuse, broncho, and mustang are somewhat synonymous with "scrub," although many of the animals described by these terms have a certain fixity of type even though they present no evidence of systematic improved breeding.

Crossbred: This term applies to the progeny of pure-bred parents of different breeds, but of the same species.

Grade: A grade is the offspring resulting from mating a purebred with a scrub, or from mating animals not purebred, but having close pure-bred ancestors. The offspring of a purebred and a grade is also a grade, but through progressive improvement becomes a high grade.

CARIBOU FOREST REDUCED

The President on August 21, 1919, signed a proclamation eliminating 12,560 acres from the Caribou National Forest, Idaho. Of this area 5,100 acres are already privately owned. This action is based on the recommendations of the Secretary of Agriculture as a result of a detailed classification of the lands. The eliminated lands have no value for national forest purposes.

SILO-FILLING TIME IS NEAR; ARE YOU PREPARED FOR IT?

(*Continued from page 1.*)

but even in silos as small as 12 feet diameter, if sufficient help is available, at least three men should be used with an increase in the force as the size of the silo increases.

The proper sealing of the silo also is important, because where the silo is correctly topped off there usually is a minimum loss of the succulent feed. A good plan is to snap the ears from the last three or four loads of corn which are run into the silo. Straw or coarse hay may also be used as a topping. Then oats should be sown over the top of the contents after it has been thoroughly moistened, if necessary, although as a rule the corn, if cut at the proper stage, is moist enough without extra watering. The oats sprout and form a dense blanket which prevents the ensilage from spoiling.

Leaf-spot of cherry seriously injures both sweet and sour varieties of that fruit in many sections of the eastern half of the United States.

GRADING FOR COUNTRY HIDES WILL AID PRODUCER'S MARKET

Direct Selling Also Is Advocated by Department

Preparation on the Farm May Be Carried On to Prevent Spoilage; Folding And Bundling Have Important Bearing

Much may be done to improve the country branch of the hide and skin industry by marketing the hides and pelts on a graded and selected basis, according to relative merits, and by avoiding many of the profit-absorbing intermediary agencies through more direct marketing by the rural producers. In this way, says the United States Department of Agriculture, country producers will not only derive more profits, but the profits will be commensurate with the quality of their products, a condition which will prove an incentive to produce hides and skins of the best possible quality.

Preparation for Market Important

The preparation of hides and skins for market is of great importance, as where they are not properly prepared and shipped they are subject to great deterioration. The farmer who has thoroughly cured a number of hides and skins by the green salting method commonly followed should place them over some elevated object, such as a barrel. They should remain there over night, to drain free of excess moisture; after which the surplus salt should be swept off or removed by thoroughly shaking the hides. If the hides are handled in this manner, and thoroughly cured before being shipped, the shrinkage should be relatively small when they are finally weighed at the hide house. If the hides are not thoroughly cured and if they have been in salt only a day or two before shipping, do not remove any of the salt, as the hides may spoil.

Folding the Hides

As a rule hides are folded so that the hair side is out. It is essential to fold in the head and neck on the body of the hide, flesh surfaces together, and to turn in the tail in a similar manner. Then a narrow fold on each side should be made by throwing back the body edges and legs upon the body of the hide, flesh surfaces together, keeping the lines of the folds parallel. The legs should then be folded back and these lapped with the hair surfaces together, bringing the break of each fold near the middle line of the back. The side folds should then be completed by bringing together the two breaks of the folds, with the middle line of the back as the main fold, in this way making one long rectangular bundle. The butt end of the folded hide should then be thrown forward about four-fifths of the distance to the neck fold, whereupon the forward portion of the bottom lap should be folded back on top of the first fold, bringing the break of the rear fold even with that of the fold just made.

Each hide should be bundled separately and tied securely, about 7 feet of strong cord being necessary to tie one hide bundle. A soft rope or line at least one-fourth inch thick is suitable for this purpose, although regular hide rope is preferable. Wire should never be used, as it is likely to damage the hide by rusting. Calfskins should be folded in the same manner as cattle hides. However, when more than one is to be shipped two folded calfskins should be placed together and tied into one bundle instead of tying each one separately.

Sheepskins Bundled Differently

Sheepskins are bundled differently from either cattle hides or calfskns. The wool sides are laid down and the skins are folded along the median line of the back with the wool side out. As many as five skins folded in this manner can be placed in a single bundle for shipment. It is not advisable to pack more than this number in one bundle, as the wool helps to generate heat very rapidly. Two pieces of stout rope should then be wound around the pack from back to belly, one passing around the back portion just in front of the hind legs, and the other passing around the front portion immediately back of the forelegs. All bundles should be tied securely, using the nautical bow-line knot, as it does not slip easily. Bundles often become untied or otherwise lose their identification marks, in which cases the railroad employees have no means of determining the identity of either shipper or consignee, especially if there are other hide shipments in the car. All shipments of hides should be tagged with good, strong linen tags with a paper finish and brass eyelets, and all addressing should be done plainly with moisture-resisting ink. Hides and skins should be shipped as soon as possible after bundling without needless exposure to sun, draft, water, or rusty or corroded metals.

Complete information regarding the best methods for skinning, curing, and preparing hides for market is given in Farmers' Bulletin 1055, which may be obtained upon request to the United States Department of Agriculture, Washington, D. C.

Hogs Heaviest Grain Eaters; Cattle Consume Most Forage

The various proportions of the crops that are fed to the different classes of domestic animals on farms in this country have been determined by the Bureau of Crop Estimates with interesting results. Corn, of course, is fed to hogs much more than to any other class of animals—50 per cent to them, or fully one-half of the quantity fed to all animals. Horses eat 24 per cent, cattle 19 per cent, and poultry 5 per cent.

Horses are the chief eaters of oats, their share being 68 per cent, that of cattle 13 per cent, of hogs 11 per cent, and of poultry 6 per cent. Barley is chiefly eaten by hogs, whose consumption is 60 per cent of the quantity eaten by all animals, while horses eat 18 per cent, cattle 12 per cent, and poultry 11 per cent. Of the small fraction of the wheat crop fed to animals, poultry gets 59 per cent and hogs 29 per cent. Nearly all the hay goes to cattle and horses, 51 and 45 per cent, respectively.

Rye has been fed to animals as well as used for bread and whisky, and more than one-half of this feed has gone to hogs, one-quarter to horses, and one-seventh to poultry. Nearly all the silage is eaten by cattle, and a little is consumed by hogs, horses, sheep, and even by poultry. Mill feed is especially for cattle and swine, which together consume 86 per cent of the whole quantity that is fed, in about equal proportions.

The figures of the bureau indicate that hogs are the principal grain eaters, horses a close second, cattle third, poultry fourth, and that sheep consume a mere trace. Cattle are the greatest forage eaters, and they and horses consume the bulk of it, so that little is eaten by sheep and swine, as fractions of the total consumption by animals.

If a currant or gooseberry plantation is properly cared for, at least 8 to 10 crops may be expected before it becomes unprofitable because of its age. Productive fields over 20 years old are not uncommon in some sections. Although the number of years a plantation will continue in good bearing condition depends to some extent upon location and soil, the most important factor is the care which it receives. The period of productiveness of both currant and gooseberry plants is longer in northern regions than toward the southern limits of their culture and longer on heavy soil than on sandy soil.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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JAMES R. RIGGS, ASSISTANT SECRETARY OF AGRICULTURE

The new Assistant Secretary of Agriculture, James R. Riggs, whose nomination has just been confirmed by the Senate, is a farmer—not merely by way of interest in the subject but by lifelong, practical application. Farming has been his primary occupation all his life. More than that, he is a farmer by heredity. So far as the available record shows, the Riggs line from which he is descended has been made up of farmers all the way. His grandfather, Hezekiah Riggs, was born on a farm in Loudoun County, Va., in 1791. When he was 22 years old, he moved to Sullivan County, Ind., and engaged in farming and livestock growing. There Commodore Perry Riggs, father of the Assistant Secretary, was born and there he spent his life as a farmer and stock grower. All of his sons and all of his sons' sons have been farmers.

Among the several sons of Commodore Perry Riggs was James R. Riggs. He was born at Shelburn, Sullivan County, Ind., February 17, 1865. For two years after graduation from the Sullivan County high school, in 1882, he was deputy county treasurer and bookkeeper for hardware and lumber firms. In 1885, when he was 20 years old, he began his career as a farmer. He made his first purchase of land in 1888. From that time until the present he has continued in the active management of his farms.

While devoting his energies primarily to farming operations, Mr. Riggs has found time both for other business enterprises and for public affairs. He was elected county auditor in 1894. For a number of years he was active in the development of the coal, oil, and gas industries of his section. For 12 years he was president of a trust company. He has been connected with the construction of more than 200 miles of improved highway. Since 1912 he has been engaged in the manufacture of drain tile.

Mr. Riggs was married in September, 1895, to Miss Bessie Lewman, of Clark County, Ind. They have three daughters.

CANNED TOMATOES WATCHED BY U. S. FOOD INSPECTORS

Federal food inspectors have been instructed to watch for interstate shipments of canned tomatoes that are in violation of the provisions of the Federal food and drugs act, according to a statement issued by the officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of that law. Legal action will be taken in reference to those shipments coming within the jurisdiction of the Federal food and drugs act which are found to be adulterated or misbranded, say the officials.

Reports have been coming to the Bureau of Chemistry that some canners, because of the scarcity and high price of tomatoes, are putting up canned tomatoes this season with pulp, puree, or seepage, without making the necessary declarations on the labels to inform purchasers of the exact nature of the product in the cans. It has been reported that in some instances packers are using seepage drained from trimmings. Since seepage contains water, its use in this way adulterates the product with water, unless the seepage has been concentrated sufficiently to contain as much tomato solid as does tomato juice.

Information regarding the application of the food and drugs act to tomato products will be sent upon request to the department.

SPECIAL CAMP-FIRE RULES TO PREVENT FOREST BLAZES

For the present serious fire emergency in the West, the Secretary of Agriculture has extended the regulation which requires campers to obtain in advance from forest officers permits to build camp fires in the National Forests in California, Oregon, Washington, Idaho, Montana, and Wyoming.

Under this emergency regulation, which will be in effect for the period from September 1 to September 30, 1919, the Forest Supervisors are authorized to designate, from time to time, as conditions warrant, the localities of special hazard in which special camp-fire permits will be required. Failure of campers to obtain such permits to build camp fires will make them liable to the penalties of the law for the violation of the regulations governing the administration of the National Forests.

The general extension of this regulation, which has been in force on several forests in southern California, becomes necessary on account of the great fire hazard and the carelessness of campers. During the present season up to September, campers in Idaho and Montana had been responsible for about 200 fires from unextinguished camp fires.

CROPS INJURED BY POTASH CONTAINING TOO MUCH BORAX

During the last few weeks the United States Department of Agriculture has received many complaints regarding injury to crops apparently resulting from the use of potash from Searles Lake, Calif. The natural brine of this lake from which the potash salts are prepared contains a considerable amount of borax. Apparently one, at least, of the companies operating in the locality did not exercise sufficient care in the preparation of the potash and let out a considerable amount of potash salts in 1918 with a high percentage of borax, averaging probably 10 per cent and in some samples going as high as 23 per cent.

The department has been conducting careful investigations of the matter in the field and these investigations indicate the substantial correctness of many, at least, of the complaints. In some of the special fertilizer tests of the department where Searles Lake potash was used, injury, which apparently was the direct result of the high percentage of borax, was clearly shown, while potash from some other sources showed beneficial effects upon the crops tested.

PREVENT OR FILL GULLIES AND AVOID SOIL LEACHING

Gullies are wasters of soil fertility. In many corn-producing sections the rows between the corn sometimes act as channels which soon wash deep and carry away much of the best soil of a field. Although it is not a simple matter to reduce these gullies, it is practical to attempt it, says the United States Department of Agriculture. A successful scheme practiced throughout the corn belt by many farmers consists in thrashing settings of grain—where grain follows corn in the crop rotation—at intervals along the gully so that the by-product straw will be deposited in such a manner as to blockade and prevent further soil erosion. Even though wheat and rye straw are valuable for bedding purposes, it is advisable to sacrifice some of the latter as the farmer will eliminate a material source of loss and an eyesore from what probably is otherwise an attractive looking field.

Soil Inoculation for Alfalfa Success Necessary in Some Sections of Country

Alfalfa failures, especially in the eastern parts of the country, result in many instances from the lack of or improper inoculation—the addition of enough bacteria to the soil to promote conditions favorable for the growth of the crop. Despite the popular conception that inoculation is necessary in all parts of the country, specialists of the United States Department of Agriculture report that throughout the alfalfa belt proper, which includes Montana, Wyoming, California, Colorado, Idaho, Nebraska, Kansas, Oklahoma, Arizona, New Mexico, and nearly all of Texas, it is not necessary to inoculate for alfalfa.

In certain other sections of the country there are sufficient alfalfa or allied leguminous organisms in the soil to make a profitable growth of alfalfa possible. Where such crops as white or yellow sweet clover, California bur clover, southern bur clover, and yellow trefoil grow, it is unnecessary to inoculate for alfalfa.

The soil should be neutral in order that the alfalfa bacteria may thrive, and unless the soil conditions are generally good it is impossible to grow alfalfa on a commercial scale.

Quite commonly the farmer secures his inoculation material from an old sweet clover or bur clover field, or else from an old alfalfa sod, applying the inoculated soil on a cloudy day or during the evening in order that the alfalfa bacteria may not be injured by the bright sunlight. Investigations by the United States Department of Agriculture have shown, however, that there is less danger of permanently injuring the alfalfa bacteria by sunlight than was formerly supposed, and although it is not advisable to court trouble by needlessly exposing inoculation material, this dirt, if necessary, can bear sunlight for several hours without severe injury.

It is essential that the soil, if taken from old alfalfa fields, should be from those plots where the alfalfa plants show numerous nodules upon their roots. Such soil, well dried, pulverized, and sifted through a window screen, is best applied to the new field through the fertilizer attachment of a grain drill, by the use of a lime spreader followed by a smoothing horrow, or by distributing it with the aid of an end gate sower attached to a wagon box. Two hundred pounds or more of sifted field soil will be sufficient for an acre. It is necessary in obtaining this material to remove from the surface 2 or 3 inches of soil and to obtain the inoculating material from the underlying 6 or 7 inches. Broadcasting the soil by hand requires a larger quantity and is best done in the early morning, late evening, or on cloudy days in order to minimize the damage effected by the sun's rays. Transferring field soil from any considerable distance is expensive and subject to the danger of introducing troublesome weeds, insects, and plant diseases.

Where to Get Liquid Culture

The United States Department of Agriculture distributes alfalfa inoculating material in the form of liquid pure culture which should be sprinkled over the seed just subsequent to planting. The maximum amount of inoculating material given to each planter is just sufficient for the treatment of one bushel (60 pounds) of one kind of legume seed. However, the following State institutions also distribute at cost inoculating material in limited quantities within their respective boundaries:

Georgia Department of Agriculture, Atlanta, Ga.; Idaho Experiment Station, Moscow, Idaho; Maryland Experiment Station, College Park, Md.; Massachusetts Agricultural Experiment Station, Amherst, Mass.; Michigan College of Agriculture, East Lansing, Mich.; New York Agricultural Experiment Station, Ithaca, N. Y.; North Carolina Department of Agriculture, Raleigh, N. C.; Oregon Agricultural Experiment Station, Corvallis, Oreg.; Virginia Department of Agriculture, Richmond, Va.; Washington Agricultural Experiment Station, Pullman, Wash.; and Wisconsin Agricultural Experiment Station, Madison, Wis.

In case an adequate amount of the inoculation can not be secured from these channels, whatever surplus may be desired may be purchased from reputable commercial concerns.

The glue method of inoculation was widely practiced several years ago in Illinois. It consists of moistening the alfalfa seed with ordinary furniture glue and then sprinkling inoculated soil over it so that the soil will adhere to the seed and carry the bacteria on to the new field. Specifically, this method consists in dissolving two handfuls of glue for every gallon of boiling water and then allowing the solution to cool. Then the seed should be placed in a washtub and enough of the solution sprinkled over the seed to moisten it, but not enough to wet the seed, one quart to the bushel usually being adequate. The soil from the inoculated field should be dried in the shade, pulverized into a fine dust and scattered uniformly over the seed, from one-half to one gallon of dirt being sufficient for each bushel of seed. Specialists of the United States Department of Agriculture ordinarily recommend the field soil method or else the use of the pure culture upon the seed.

Cotton Still One-Animal Crop In Many States of the South

Plow and cultivator are still pulled by one horse or mule on nearly all cotton farms in the States of the Atlantic Coast and in Alabama and Louisiana, the cotton specialist of the Bureau of Crop Estimates, United States Department of Agriculture, has recently determined. One-animal plowing and cultivating prevails on 72 per cent of the cotton farms of Mississippi, 64 per cent in Arkansas, 46 per cent in Tennessee, 14 per cent in Texas, 10 per cent in Oklahoma, and 6 per cent in Missouri, while in California all plows and cultivators are drawn by more than one animal. The investigation did not discover the extent to which tractors are used.

Riding plows and cultivators are used on 18 per cent of the cotton farms in Arkansas, 27 per cent in Tennessee, 68 per cent in Missouri, 70 per cent in Oklahoma, 76 per cent in Texas, and on all cotton farms in California, but on only small fractions of the cotton farms in other States.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations for positions in the Department of Agriculture:

Assistant animal husbandman, for men only, on October 8, 1919. Two vacancies in the Bureau of Animal Industry, for duty in the field, at $1,200 to $1,500 a year, will be filled from this examination.

Research assistant in agricultural geography, for both men and women, on October 8, 1919, to fill a vacancy in the office of farm management, at $1,500 to $2,000 a year.

Applicants for the above examinations should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Field superintendent in insect control, for men only, to fill vacancies in the Bureau of Entomology, for duty in the field, at $1,800 to $2,400 a year. Date of examination, October 4, 1919.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Store Cotton—Stop Great Loss.

Cotton raisers are losing annually an average of $30,000,000 from weather damage to bales left in the open. That estimate is regarded as conservative, for every bale exposed to weather soon loses enough "pickings" to represent at least $2.50, and instances of much greater loss to individual bales are not infrequent. An instance that is not a great distance from typical concerns a bale that was exposed to the weather for six months, losing 76 pounds at 23 cents, or $17.48. The United States Department of Agriculture, through its Bureau of Markets, is urging southern farmers to store their cotton and stop this waste. It calls attention to the warehouses licensed and bonded under the United States warehouse act, says that they furnish best receipts—good for cash at any bank—cheaper insurance, and better service. The department does not confine its recommendations to bonded warehouses. More general use of private warehouses will do much to stop the big loss.

Don't Delay Home Canning.

The United States Department of Agriculture again urges housekeepers not to neglect nor delay home canning, drying, and preserving. Fruit, sugar, and containers may be expensive, but even at the prices being charged for them a saving in household expenses can probably be made by filling the pantry shelves while there is an opportunity to do so. There is no indication that the usual margin of difference in cost to the consumer of home and commercial products will be lessened. Moreover, a well-stocked pantry now assures a more varied, attractive, and wholesome diet next winter.

Home demonstration agents and club leaders of the department and the State agricultural colleges will give all possible assistance. Housekeepers who desire copies of the department's canning directions may obtain them immediately and without cost by addressing the Division of Publications of the United States Department of Agriculture at Washington, D. C. Canning directions may also be obtained in many cases from the State agricultural colleges.

Cattle Saved from Drought.

Assistance to stockmen of the drought-stricken Northwest by the United States Department of Agriculture, the State agricultural colleges, and State departments of agriculture have been effective in relieving the situation and in facilitating the transfer to new pastures and the marketing of much endangered stock. Temporary offices have been opened in South Omaha, South St. Paul, Billings, Mont., Kansas City, and Chicago, where as accurate information as possible is assembled on market conditions, the movement of stocker and feeder cattle, feeder lambs and breeding ewes, and available feed supplies. Information concerning the run of stock to market is distributed among farmers in the corn belt, and that concerning feed supplies among stockmen in the droughty area.

The most recent review of the live-stock situation in the Northwest is encouraging. Although there have been heavy movements of live stock to the central markets and to pasture areas eastward and southward, there has not been, and will not be, any great sacrifice of this live stock. Those who expect to buy stock from the drought region for less than market value are open to disappointment.

It is anticipated that the movement of live stock will be heavy during the next few weeks. Cattle shipments from the Northwestern States during July and August to the central markets have approached record proportions, but as there has been an abundance of rough feeds in adjacent territory demand has been active and there has been no congestion. As a consequence of the drought the market movement started about three weeks earlier than usual. Those best informed on market conditions assert that there is little likelihood of a glut in the market unless something unforeseen develops.

Fall Seeded Lawns Best.

Throughout the South Atlantic States fall-sown lawns are always preferable, because, as a rule, spring seeding merely prepares a fine seedbed, which is dominated by crab grass, irrespective of what grass-seed mixture is planted. The fall-seeded lawn should be sown during the first two weeks in September, in order that the turf may attain adequate growth so as to weather the winter well. Old turfs which are beset with weeds may be renovated in the fall by raking out all the crab grass and forming a light mulch about one-half inch deep, so that more seed may be sown as desired. Although this practice is not recommended, it may be instituted where conditions operate against a new seeding. Thousands of dollars' worth of costly grass seed are wasted each year in the Middle and South Atlantic States in spring seeding. Specialists of the United States Department of Agriculture say that fall seeding saves unnecessary work in reseeding, as well as extra costs which usually attend the failures of spring seedings.

How to Use Woods.

Up-to-date and practical information on how to build boxes and crates, make waterproof glue joints, prevent decay in wood, distinguish commercial woods, or keep doors from shrinking and swelling, is made available by the Forest Products Laboratory at Madison, Wis. The information is sent out at intervals in the form of technical notes and is based on many tests made at the laboratory. These technical notes are available for distribution to the wood-using associations, technical schools and colleges, and others on application made to the director, Forest Products Laboratory, Madison, Wis. The Forest Products Laboratory is part of the Forest Service, United States Department of Agriculture.

D. C. Routs T. B.

The District of Columbia has been under Federal supervision as regards bovine tuberculosis during the last decade. Tuberculin testing in the District is officially required. It is interesting to note that during this period the losses from tuberculous cattle have been reduced from about 19 per cent of the total number of cattle tested to 0.63 of 1 per cent, the percentage of reacting cattle last year. During the last 12 months 1,264 cattle were tested in the District of Columbia and only 8 reactors were found. There were also 370 additional cattle handled in interstate shipment for admittance to the District and of this number 30, or about 8 per cent, were found to be infected with tuberculosis. The District of Columbia is the only large area in the United States where systematic testing for locating and disposing of reacting cattle has been conducted over a term of years. The marked decrease in the number of reacting cattle during the last 10 years is particularly noteworthy as showing how

the bovine plague may be controlled and eradicated.

Time to Pick Brood Sows.

Early fall is the time of year when hog growers should select from the spring crop of pigs the sows to be used as next year's dams. From now on until the breeding season these sows should be fed in a manner different from the way they were to be fattened for market purposes. Good forage crops are practically a necessity. A self-feeder containing a good quality of thrashed oats makes good feed for these sows. In addition, according to specialists of the United States Department of Agriculture, they may be fed a small amount of corn and some shorts or middlings, and fish meal or tankage.

Careful attention should be given to the selection of sows for breeding purposes. First, they should be selected from a good sized litter and from a litter whose dam has good suckling qualities. The brood sow should be of a good rangy type, with a good, strong arched back, deep sides, rather thin neck, and not too broad in the face. By all means she should be a "good-footed" animal with good, strong legs and pasterns and rather upstanding from the ground.

The sow that takes plenty of exercise freely is the one that is most likely to make a desirable brood sow. Do not select a sow from a litter whose dam is cross and irritable. The sow should be gentle and easily handled.

Attention should also be paid to the eyes. A blind sow is likely to step on and injure her pigs. Careful attention to these details at this time will have a tendency to add to the value of the breeding herd and to the number of pigs that may be brought to maturity.

Women Get Better Butter Prices.

Farm women in many parts of the South have doubled their receipts for butter. In some instances this increase in price is due to the improved quality of the product and in others to better marketing methods. Both the better quality and the better selling have been made possible by the assistance given the southern butter makers by the home demonstration agents. These experts in home economics, who are sent out by the Department of Agriculture and State agricultural colleges, teach improved methods of making butter and cheese, as well as other household lore, to the women who live in dairy counties. As soon as enough women in one locality are making first-class butter enough to warrant starting a butter club, one is organized.

These circles or clubs market cooperatively, and the quality of the products which are sold through them is guaranteed by the members. One such club is located in Neshoba County, Miss. It has had more demands for its butter this year than it could fill. During the season it has supplied three markets and shipped away about 40 pounds each week. The 1st of July the members of this club were receiving 55 cents a pound for their butter, while the regular price in the local market was 20 to 25 cents. During the first six months of the year the Hope Butter Circle of Neshoba County received $725 for butter shipped out of town.

Paraffin Protects Silo Interiors.

An experienced stockman reported to the United States Department of Agriculture that five years ago he coated the interior of his concrete silo with paraffin and that this material has efficiently protected the silo ever since, with indications that the protective covering will be good for several years more. This stockman used 40 pounds of melted paraffin in painting the interior of his 110-ton silo. The paraffin was applied hot with a large paint brush. Care should be taken to avoid splashing since hot paraffin causes severe burns on bare flesh.

This man eliminated the need for scaffolding or ladders by applying the paraffin as the silo was filled, painting a strip as high as he could reach all around the silo and then waiting until the silo had filled up sufficiently so a strip of corresponding size could be applied higher up. He reports that on thorough examination during subsequent years the only noticeable damage to the paraffin protection occurred where the tines of a pitchfork had scratched the surface. Otherwise, the covering remained practically intact. A protective coating is particularly desirable for use in silos made of solid concrete, concrete blocks or similar building material of a semiporous character likely to be attacked by silage juices. The smooth paraffin coating also is believed to permit the silage to settle easily and uniformly, thus avoiding air pockets. Painting the interior of the wooden silo with a mixture of coal tar and creosote protects the building against decay and increases its working life several years where the application is repeated every year. The material costs about 20 cents a gallon and approximately 3 or 4 gallons are sufficient for a 100-ton silo.

Fair Has New Girls' Dormitory.

Oklahoma club girls who have been chosen to represent their county at the State fair will be housed this year in a new dormitory on the fair grounds. The State fair association in Oklahoma, as in many States, gives during the fair week instruction in domestic science to girls of the State who are chosen usually because of their prowess in club work. In some States the champions in some particular project are the privileged ones who attend the fair and the school with their expenses paid. In Oklahoma, however, it is the girls who score the best all-around record who are sent to the domestic science school. An all-around score means good work, excellent conduct, ability as a leader in her club, regular attendance, and many other things that go to make up an ideal girl as well as an ideal club member.

Moving Time for Pullets.

September is moving time for the hens and pullets which must be transferred from the range to their winter quarters as early as possible so as to be acclimated to their cold-weather environments before they begin to lay. Year after year poultry keepers neglect to ship their stock from the summer resorts to winter lodgings early enough, as this is one of the basic principles of best management, according to specialists of the United States Department of Agriculture.

Mill Hands Drink More Milk.

Milk, either sweet or as buttermilk, bids fair to become the favorite soft drink of the factory employee. Dairy specialists, sent out by the Department of Agriculture this year, have been giving talks, in which the value of milk is stressed, to representative groups of workers in various trades. In Worcester, Mass., short talks on milk as a food have been given in 11 factories. Exhibits have been set up in some of the factories visited by the specialists. After each lecture about 2,000 pamphlets were distributed. In Worcester 14 factories are now selling milk to their employees during the morning or noon hour.

When interplanted in cherry orchards gooseberries and currants may be left for several years, according to the growth of the orchard and the size of the bushes; and in apple and pear orchards they may be left somewhat longer, though the ground occupied should be restricted to one or two rows of bushes through the center of the space between the tree rows. Otherwise, the bushes will be likely to interfere with the proper care of the trees. In vineyards the currants and gooseberries are often made a part of the permanent plantation, but while they are commonly productive when so grown, the grapes are likely to be rather unproductive.

When Brown Betsy Goes A-Traveling Treat Her Kindly; It Pays Good Cash

Each fall and spring there is normally a heavy movement of springer or fresh cows from the city markets and from dairy breeding regions to the milk-producing sections of the country. Many commercial dairies do not raise new recruits for their herds, but simply make a practice of milking out fresh cows and then disposing of the dry animals as beef and purchasing more cows which have just calved. Dairy farmers, also, in order to maintain their production of milk at a normal point throughout the year, often have to purchase fresh cows or near springers at a time when most of the producers in their herds are dry. All dairymen who purchase cows are urged by the United States Department of Agriculture to exercise every effort to expedite the railroad movement of the dairy matrons during their time in transit and to provide all possible comfort for the animals en route. Careful management will reduce mortality and will increase production over the flow from the average cow carelessly "railroaded."

Valuable Animals by Express

Valuable pure-bred cows usually should be handled by express service, as their increased worth for breeding purposes over that of grade animals, which are usually handled by freight service, justifies the additional expenditure for a rapid trip from the point of loading to destination. Expressage usually costs four or five times as much as movement by freight, but in the case of particularly valuable cows the saving in animal comfort, the shorter time in transit, and the better conveniences for feeding and watering the animals, make the added expenditure advisable. In case pure-bred animals can not be handled by express, they should loaded according to the special system discussed in this article. As far as possible, dairy cows should be shipped one or two months before they are due to freshen, as repeatedly fresh cows have been ruined, so far as the subsequent lactation period has been concerned, as a result of being shipped shortly before freshening or so as to calve in transit.

Milch cows of grade breeding ordinarily are shipped by freight, dry cows and far springers being most desirable for long shipments. Heifers which are not due to freshen until three to four weeks after arrival at destination make good "buys," as they are of a size and condition which permits of loading the car to capacity. Furthermore, immature animals are less susceptible to injury in transit and to damage as a result of change of environment. So far as possible, animals without horns should be shipped, and where it is necessary to carry any horned animals in railroad cars they should be penned apart or tied securely at one end of the car, so that they can not injure any of their traveling mates. Where bulls are shipped in mixed carloads, these sires should be confined in pens apart from the other cattle.

Other conditions being equal, it is recommended by specialists of the United States Department of Agriculture that about 14 mature cows be loaded in a 38 or 40 foot car. A practical arrangement is to tie four cows in each end of the car, facing the end walls, and then rough partitions can be installed so that two other rows of three cows each face a center alleyway between the car doors, where the attendant can stay and extra feed and water can be carried. This arrangement is most comfortable for the cows, as they ride and absorb the shock and jar better, while it also facilitates the operations of the caretaker in feeding the cows and cleaning the car.

Watch the Weather

It is preferable to move the cows during cold weather, as hot weather and close confinement in the car are hard on the milk producers. Care must be exercised, however, not to expose the cows needlessly during very cold weather, owing to danger of their contracting pneumonia. Cows which have been accustomed to warm, well-ventilated stables suffer during the railroad trip unless the car is properly loaded and provision made for a frequent change of air. At best it takes an animal about a year to become thoroughly acclimated to a warmer or colder climate than that to which it has been accustomed, and on this account the movement should take place at a time of year when the temperature at the two points is as nearly equal as possible.

Dairy animals—although they require neither petting nor pampering—should be handled under normal conditions before and during the railroad trip. The cows should be fed and watered at regular intervals, and if any of the animals are in milk they should be milked according to regular schedule. It pays to feed grain and hay during a long shipment where the cows are accustomed to these feeds. It is difficult to feed grain in a freight car where no special provisions are made to prevent wastage, as a result of the tendency of the animals to move about where they are not held securely in place. However, on long trips grain can be carried in the car and fed at all points where the stock is unloaded. A competent attendant should always accompany the dairy cows; he should ride in the car with the stock, as often he can avert injury to the animals by prompt action in case one of them gets down or otherwise gets into trouble.

Several large barrels of water, as well as plenty of feed, should be carried in the car as insurance against delay or accident which may detain the train to the extent that without this feed the animals might go hungry or thirsty far beyond the 36-hour limit. Sand is one of the best bedding materials, and during long trips fresh supplies of it should be placed in the car at unloading points whenever they are needed.

NO NEED FOR FARMER TO PLANT POOR SEED CORN

This year's corn, over most of the United States, is good corn, the kind of corn that a man can plant with greatest assurance of getting a good crop. There is no knowing what next year's corn will be. It may be late, caught by early frosts, soft, and unfit for seed. The farmer who looks ahead, say corn experts of the United States Department of Agriculture, will save enough seed corn out of this crop to meet his needs for two or, better still, for three years.

The old cry, of course, will be raised that there is not time at this busy season to select seed corn even for one year's planting, to say nothing of two or three. It does take time—but it takes less time to select the corn now than it will take spring after next to scour the country for a crib of old corn or, failing that, to find seed farther south. Fortunately, the right way is the least expensive and safest way. Also, it enables the farmer to go on growing the strain of corn that has "made good," instead of getting something haphazard that he knows nothing about.

If possible all small tools for the farm should be purchased on one order. This will save time and, usually, money. Also, it will entail a total expenditure sufficiently large to impress the farmer with the importance of giving systematic care to his small tools.

Boys joining agricultural clubs of the United States Department of Agriculture and entering contests must be between 10 and 18 years of age on January 1 of any given year.

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FRENCH LEARN AND ADMIRE AMERICAN CANNING METHODS

First Series of Demonstrations is Successfully Concluded

Processes Used in U. S. Taught to Leaders by Department of Agriculture Workers; Other Countries Ask for Similar Teams

A series of canning demonstrations to teach the French people American methods of home canning has just been successfully completed. Demonstrations and lectures on American methods of food preservation have been given by four experienced home-economic workers who, early in the spring, were lent the French Government by the United States Department of Agriculture.

Recognizing the supremacy of the United States in the art of home canning, the French Ministry of Agriculture early in the present year asked if it could borrow some trained demonstrators to teach American methods of home canning fruits, vegetables, meat, and fish in France. A team of four sailed for France early in June.

The work, as planned by the Ministry of Agriculture and carried out by the American demonstrators, has been concentrated on the training of leaders who, in turn, will study the methods and teach such of them as are adapted to the conditions of the French people. The French Government decided to send the directors of the French agricultural colleges and the professors of chemistry and botany to the first series of demonstrations. The first course of home canning instruction included in its student body 4 directors of agricultural colleges, 2 chiefs, 1 inspector general from the Ministry of Agriculture, 21 professors from the different agricultural colleges, 1 subdirector, 2 Egyptians who had just been graduated from college, 4 wounded French officers, 6 wives of college professors, 1 newspaper reporter and 1 railroad agent. Besides these a directrice, 2 teachers, and 34 other women took the same course, and others, women as well as men, to the number of about 100. The demonstrations were given to the canning students, as a whole, but in accordance with local custom the women had their practice period at a different time than did the men.

M. Chancrin, inspector general, delivered lectures every forenoon to the as-

(Continued on page 3.)

HOW SAVING WILL MAKE CHEAPER LIVING.

The efforts of the United States Government to overcome the high cost of living through a country-wide appeal to the people of America to save have been epitomized by President Wilson in his message to the people in connection with the railway shopmen's demands for an increase in wages.

"Only by keeping the cost of production on its present level, by increasing production, and by rigid economy and saving on the part of the people can we hope for large decreases in the burdensome cost of living which now weighs us down," said President Wilson.

Concerted action by all of the people in saving goods can be accomplished in only one practical way—that is by saving money, which represents power to purchase goods. The Treasury Department offers to the people War Savings Stamps and Treasury Saving Certificates as an inducement to saving. By denying themselves unnecessary luxuries and pleasures and by putting the money that might have been spent for these things into Government securities, each individual fortifies his own position in life and at the same time does himself and his neighbors throughout the country a great service.

Money saved, both by means of savings accounts in banks, and in Government securities, is at once made available for the means of greater production. Deposits in the banks form the capital which is loaned to business and industrial enterprises that they may build and extend factories, which are the sources of production. Money placed in Government securities makes it unnecessary for the Government to call upon the banks to lend funds for the running of the great Governmental machinery.

A few months of rigid economy and self-denial will give the world a chance to recover its economic balance. And in the course of time, production will be increased over demand, to an extent where American food and manufactures can be shipped abroad and spared for the peoples of other countries. In the present state of conditions, the people of other countries are competing with us in the buying of commodities that we need at home.

It is plain that there is only one method of getting our feet on the ground and that is by the method suggested, by practicing economy, increasing production, and by saving money, the workers of America can force down the cost of living and bring back the world to a normal basis of economic conditions.

GIVES WARNING OF DANGER IN RAPIDLY RISING LAND PRICES

Department Informs Farmers of Probable Results

Big Profits Made by Speculators Without Making Return—Summary of Advice Based on Investigations in Active Regions

Prices of farming lands in many sections of the United States, especially in Iowa and the other Corn Belt States, have risen with such rapidity that serious consequences may be expected, especially with the return of normal conditions. This is a warning to farmers issued by the United States Department of Agriculture.

Speculators, many of them business men of the cities, in many cases have reaped big profits by buying and reselling without making any substantial contribution in return. Farmers have sold land at prices that seemed high and then have bought again at still higher figures, losing thousands of dollars in the exchange. The bona fide farmer who purchases land at present high prices may find the returns on his investment abnormally small if earnings should decline when normal conditions are restored, and may find himself seriously embarrassed if he has financed the purchase largely on credit.

That is a summary of the situation as it is viewed by investigators of the Bureau of Farm Management sent by the

department into the regions of most marked speculative activity. Here is a summary of their advice which is broadly applicable probably to the majority of farmers in the regions affected, though it may not fit every individual case:

Much of the present speculative activity has been due to the fact that speculators have been able to catch some farmers unawares, buying their farms at a much lower figure than was justified in relation to prices in adjoining regions. Therefore you should be careful about selling to a speculator who is buying to sell again. If it is worth more to him it probably may be worth more to you. If you own a farm and desire to continue farming be very sure before selling that you can obtain out of the proceeds of your sale as good a farm as you have sold.

If you desire to purchase a farm you should be very sure that the price you pay is fully justified by the probable net earnings of the farm when conditions become more normal.

Be careful that the buyer of your farm is able to complete his payment on March 1 in case he fails to resell. In general it is safe to require an initial cash payment of one-third the sale price.

Be cautious about speculating yourself. Especially do not buy on a narrow cash margin with the expectation that you will be able to sell and obtain the necessary means of settling your contract. You may not be able to effect a sale. A land "boom" may collapse suddenly.

WHY GEN. PERSHING'S HORSE WAS HELD IN QUARANTINE

"Kidron," the horse that Gen. Pershing rode to victory in the World War, began his career as a laurel wreath collector by getting in quarantine. While the great commander is playing the leading rôle in triumphal parade in the big cities of the country, his war horse is detained, under observation by Government veterinarians, at Newport News.

It is not that "Kidron," so far as anybody knows, has any "catching disease," but simply that he may have any equine disease, and like every other horse of the A. E. F., must stay at the port of entry for five months, until the Government veterinarians know that he is a safe animal to be at large in horse society in the United States.

Naturally, a great many people wanted to see Gen. Pershing mounted on the horse that carried him over the battlefields of Europe during the last fateful days of the world's greatest war. But there are many millions of horses and horse owners in the United States who, respectfully as they feel toward "Kidron," are entitled to protection from any disease that he may have picked up in Europe, where there are many horse diseases of which the United States has, thus far, kept clear. When the appeal was made, without the knowledge of Gen. Pershing, to the United States Department of Agriculture that an exception be made of "Kidron" and that he be allowed to come out of quarantine almost immediately after landing, in order that he might be in Washington for the parade on September 17, a regretful but firm refusal was the result.

The position taken by the Department of Agriculture is that, under no circumstances, can sentiment be permitted to interfere with the protective measures that have been worked out, slowly and sometimes precariously, for the protection of the live-stock interests of the country.

If "Kidron" were released from quarantine, he would probably visit scores of cities throughout the country, and if he had a disease, might spread it beyond all reasonable possibility of eradication. For those reasons the Department of Agriculture thought it wise not to create any sort of favored status for him.

This is not the first time such a situation has occurred. When Gen. Leonard Wood was ready to return from the Philippines, he had two horses that he very much desired to keep with him. The Department of Agriculture insisted that safety demanded their detention. President Roosevelt took a personal interest in the matter but investigation convinced him of the justice of the department's position, and the horses did not come in.

Give Alfalfa Field A Winter Overcoat; Close Grazing at Season End is Harmful

When the ground is frozen, the snow is flying, and the wind is whistling a merry gale, your alfalfa field will prize a warm winter overcoat under which it will pass the cold weather in excellent condition. Nature is the tailor that turns out the winter clothes for the alfalfa field and specialists of the United States Department of Agriculture recommend that farmers cooperate as far as possible with nature in replenishing the winter wardrobe of this forage crop.

There are two important reasons why alfalfa should not be cut or grazed close at the end of the growing season. It is essential that a sufficient growth be allowed to remain on the field to catch and hold snow, and to afford protection to the plants from severe winter conditions. It is even more important that the late growth be not cut or grazed, since close cutting or grazing makes it impossible for the plant to store up the necessary reserve food material in its crown and roots. Unless there is such reserve upon which to draw, the vigor of the plant is greatly impaired and it is not able to withstand severe winter weather. This is true of old as well as of young plants, and in many cases close cutting has been as responsible for the mortality of the plants as lack of inherent hardiness on the part of the strain.

Late Hay Crop Loses

A common practice of many alfalfa raisers is to cut off a crop of hay rather late in the fall or else to pasture the forage so heavily at this time that adequate growth will not be available for the protection of the crop during cold weather. The scant hay crop which the grower gains by this practice of late clipping in no respect repays him for the damage which he usually does to his stand of alfalfa. Every farmer should allow his alfalfa fields to grow at random, unmolested during the fall, as by this he is providing the essential warm winter clothes for the crop. Not only should he refrain from cutting any hay but he also should be careful not to graze the alfalfa too closely. This applies particularly to new stands, seeded the preceding summer, as the fall growing season is the time when these new fields establish their root systems and produce sufficient growth for their cold-weather protection. This growth, which ultimately dies and lies like a blanket over the field through the winter, will not reduce the quality of the next cutting of hay, but, on the contrary, will act as a beneficial mulch.

Protecting Animals from Bloat

It is also essential to protect the farm live stock against bloat where they are pastured even lightly during the fall season on the alfalfa fields. This is best done by never turning the live stock on the alfalfa fields at a time when the animals are so hungry that they will gorge themselves with this succulent green feed. Care must be exercised, particularly, not to graze the alfalfa when it is wet, either from recent rains or from dew, as the green crop in this condition is a prolific cause of bloat.

Another reason why late fall cuttings of new alfalfa fields are undesirable comes from the fact that not only are the hay yields limited in quantity, but they also are inferior in quality, being washy and without the bone-building and growth-producing substances which are the valuable elements in well-matured, full-grown alfalfa.

Narrow-Leaf Vetch Is Transformed from Waste to Valuable Forage Crop

Narrow-leaf or Augusta vetch is a Cinderella of southern soil improvement and forage crops. It has been transformed from a weed in the North into a valuable forage crop in the South. For many years narrow-leaf vetch has occupied the unique position of being a gift crop to southern farmers in that it has been disseminated largely as a volunteer, reseeding itself from year to year and spreading over neighboring fields. Plurality of purpose is a particular asset of this scatter-growth, which is adapted not only for soiling, grazing, haymaking, ensiling, but also as a green manure and a seed crop.

Probably because it is a gift crop, that is, a volunteer which comes regardless of the farmer's like or dislike, explains why the crop is not grown more extensively on a commercial scale in Dixie land. Unfortunately, it is difficult to save narrow-leaf vetch seed because the seed ripens unevenly and shatters immediately after attaining maturity, with the consequence that it is expensive to attempt to save much of the seed at any one time. Generally the crop establishes itself as an unbidden guest, and, on permanent sods or in pastures, it commonly reseeds itself from year to year to the ultimate improvement of the soil and well-being of the live stock.

Covers Wide Territory

Narrow-leaf vetch is closely related to common vetch, being distingushed from the latter by its narrow leaflets, small flowers, black pods, and round, small seeds. It is naturalized and thoroughly established from Georgia to Pennsylvania, and occurs even as far north as Nova Scotia. Especially in Georgia it is highly appreciated in the vetch-growing sections and sometimes makes up a considerable portion of the hay. The United States Department of Agriculture anticipates that this species of vetch will be more largely grown in the future. Recently a variety that does not shatter its seed so easily and hence is suitable for production as a commercial seed crop has been discovered.

Peculiarly enough, many northern wheat fields, particularly those in Minnesota, are contaminated with annual visitations of narrow-leaf vetch, which, in this section, bears the reputation of a weed. This seed is separated from wheat and other small grains and is disposed of as a waste product or screening. Although much of this waste seed has been utilized in commercial stock feeds, a considerable portion has been exported to the Southern States and offered there as seed on the open market.

Investigating Northern Seed

Southern farmers, in many instances, object to Northern vetch seed because of its generous content of cockle. Some also question whether the vitality and vigor of the Northern vetch when grown on Southern soils are as marked and notable as those of the native vetch varieties. The United States Department of Agriculture is now investigating the adaptability of the Northern vetch seed, reclaimed in wheat milling, for use on Southern pastures and sods.

It is possible and practicable to save the native narrow-leaf vetch seed of the South for subsequent sowing operations, but this is expensive. However, the seed of the new variety of vetch which does not shatter so easily should, to a large extent, solve the problem.

GOOD LAWNS SOWN IN FALL

If you desire a greensward that is sightly, attractive, healthy, and capable of producing an abundant growth from early spring until late fall without developing unsightly bare spots or brown, seared turf, sow your grass seed in the fall and sow it early enough, so that the grass plot will make sufficient growth to weather the winter in a rugged, robust condition. This information is intended particularly for lawn makers in Pennsylvania, Virginia, Maryland, Ohio, and Tennessee, and other States in the same latitude where the common but unsatisfactory method of spring seeding dominates.

FRENCH LEARN AND ADMIRE AMERICAN CANNING METHODS

(Continued from page 1.)

sembled professors, while the Americans taught them home canning in the afternoon. Alternate afternoons were used for the demonstrations and practice periods.

In planning the course it was not anticipated that the men professors would care to practice what they had learned at the lectures. When the time for the first practice period came, however, every one wished to try canning for himself. So the directors and professors rolled up their sleeves, put on their laboratory aprons and washed, pared, blanched, and packed vegetables with as much interest and industry as any American club girl ever showed.

Asked Scientific Questions

The work of instructing this class differed from that given the American club girls in that with plenty of scientific knowledge and an interest in underlying principles, the professors asked for the scientific explanation of all the various steps—questions an ordinary youngster who was being taught to can would not know enough to ask.

In the interim between the first and second series a course of instruction to a class of girls from the devastated areas was given. The second series of demonstrations started August 8 at Grignon. This course of instruction will be given to the women teachers of movable schools.

No attempt has been made by the Americans to convince those who are attending the course that they must adopt the American way of canning in every detail. On the contrary they are taught they must adapt it to the requirements of their own people and to French conditions. The main thing is to make the work in the beginning so simple that all people can be reached and to conform it to conditions and requirements as it develops.

French social conditions, traditions, and customs are in many ways barriers of no small importance to the work, it is said, and many of them will have to be set aside or overcome before demonstration work for the rural districts can succeed.

May Adopt American System

One lecture in the first series was devoted to the influence the work has had on the rural districts of this country. The confidence of the country people in the value of the work and the help it gives them were told the leaders in French agriculture by the American workers. The inspector general asked to have published for their benefit this lecture on the organization of the work here, with its resulting education and better cooperation among the farm people. Some of the methods, he decided, could be used or applied now.

It is possible that this course may be the foundation for future county agent and home demonstration work in France. The authorities and the professors all seemed anxious to try it.

Other countries, impressed by the course which has been given in France, are asking if it would be possible for them to secure the services of similar instruction teams in home canning.

Weekly News Letter

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

First North-and-South Trail in White Mountain Forest

Trampers in the White Mountain National Forest will find ready for them next summer the first north-and-south trail extending through the area of land held by the Federal Government. The new trail will be made a reality by the construction of a link from Bartlett, N. H., over Cave Mountain and Mount Parker to connect with the Davis Path on Mount Resolution. The link, which is to be constructed by the Forest Service of the United States Department of Agriculture, and the paths with which it will connect, will extend for approximately 40 miles, from Wonalancet, at the extreme southerly end of the White Mountain group, to Appalachia, at the north of the Presidential Range.

Trampers can profitably spend a week in traversing the new route, according to Forest Service officials. It will pass over most of the Presidential Range, and will disclose some of the most beautiful scenery of this vacation land.

What to name the new route is being debated by the Forest Service men. One suggestion is that it be called Agiocochook, which is the Indian name for Mount Washington. This name is open to objection, officials say, because of its length and difficulty. There may be a compromise. In the meantime the office of the forest supervisor at Gorham, N. H., invites suggestions.

The Forest Service also expects to have in operation early next summer the two public camping grounds that are being installed on Government-owned land in the White Mountains.

DOMINANT LIVE-STOCK BREEDS IN COUNTIES TO BE LISTED

Department Announces Work in "Better Sires" Campaign

Records to Be Available for Use of Public—Will Aid Purchasers to Find Animals of Kind They Desire

In the nation-wide campaign to promote the general use of pure-bred sires and better live stock, the United States Department of Agriculture will keep records of the agricultural counties according to the breeds of live stock which predominate in them. Practical experience has demonstrated the desirability of communities concentrating on the production of only a few breeds and types of the different classes of live stock. Such management not only enables the individual farmers to aid each other in improving and upgrading their stock, but also gains for the communities wide reputations as centers for certain breeds. The raising of several dominant breeds in any community makes that locality the mecca for prospective purchasers who are desirous of buying animals of those breeds, and also makes it possible for buyers to obtain stock in large quantities.

Records to Be Kept

For the service of persons interested in examining or selecting live stock, the department will keep a record of the dominant breeds and varieties of the different kinds of live stock in each county where such information is abtained from accurate and dependable sources. Pending future developments in this work, a breed or variety will be considered dominant if 100 or more good pure-bred sires of that breed or variety are owned and used for breeding in a county. Sources of information concerning these farm animals will include county agents, officers of State agricultural colleges, and representatives of State boards of agriculture. The department requests that State and county livestock associations transmit figures and all data available on the pure-bred sires of their region to their local county agent or the State agricultural college. This material should include a statement of the number of pure-bred sires in the county, together with the date when the information was gathered. Initiative in collecting and reporting these data rests entirely with the county and State officials.

Will Aid Purchasers

Information gathered in this way by the Department of Agriculture will be available to the public. Thus persons wishing to purchase any kind of live stock may ascertain readily what counties in the United States, according to the records, have pure-bred sires of the various breeds in which they are interested. Naturally, where as many as 100 pure-bred sires are used in a community, these herd-headers will stamp their quality to a considerable extent on the live stock of that county and lead to the production of many desirable grade females, as well as pure-bred stock of both sexes. Furthermore, in counties where a certain breed is considered dominant, even though there are less than 100 pure-bred sires, such facts should be reported and will be kept as supplementary records.

DISCLOSES OVERCHARGES BY COMMISSION FIRMS

In the course of its supervision over live-stock markets under the food-control act, the Department of Agriculture has been investigating the practices of livestock commission firms licensed under that act. In a number of instances overcharges by such firms on feed furnished by them in the stockyards to their patrons' consignments of stock have been disclosed at some of the largest livestock market centers as a result of audits made by accountants of the Bureau of Markets Stockyard Supervision Service. These overcharges in some cases have amounted to many thousands of dollars annually.

One large commission firm recently was required to restore to its consignors more than $20,000, representing such overcharges made by it since January 1, 1918. A number of firms, insisting that these amounts in their own cases accumulated without any knowledge or willful intent on their part, but by reason of the method of doing business in the stockyards, and not claiming the money as their own, have assured the department of their willingness to remit to their shippers on an equitable pro rata basis. Arrangements to that effect are now in progress.

Others have refused to adjust the overcharges in this manner and notices have been served upon such firms that unless they make proper restitution to their shippers their licenses will be suspended or revoked, as the circumstances may warrant. Six of these firms at Chicago, on whom these notices were served, applied to the United States district court for an injunction restraining the Secretary of Agriculture from revoking or suspending their licenses. A temporary injunction was granted pending a hearing to be held at Chicago on September 15.

Proper Handling of Live Stock Prevents Loco Poisoning; Cures for Good Animals

Range live stock in large areas of the Western States is constantly subject to poisoning by loco weeds which, if eaten freely, cause symptoms of madness or insanity, and eventually death. The danger is especially great when grass is short and the animals are obliged to rely on weeds and bushes for food. To assist stockmen in preventing losses from loco poisoning, the United States Department of Agriculture has been making investigations to combat the danger and has obtained numerous facts of value.

There are three poisonous locoes—purple loco, white loco, and the blue loco or "rattleweed" of Arizona and New Mexico.

How to Identify Locoes

The purple loco weed is a perennial which grows in patches on adobe soils, attaining a height of 2 feet, and generally occupying a space of about 2 feet in diameter. Its flowers are rather inconspicuous, being deep purple in color. It is sometimes called "woolly" loco, because its leaflets are densely covered with hairs. It occurs as far north as South Dakota, as far south as Mexico, as far west as Arizona, while its eastern limit is central Kansas and Nebraska.

The white loco, familiar in Wyoming, Montana, and Colorado, is called the "stemless loco," because it has no true stem. Its habitat is from Alaska to Mexico, as far east as central Minnesota, and as far west as central Utah and Arizona. It grows abundantly on sandy soils, and in parts of Colorado, Wyoming, and Montana at this weed's blossoming time large areas are as white as though covered with snow.

The blue loco of Arizona, New Mexico, and parts of Colorado, Utah, and California, grows abundantly, appearing in some localities early in February and maturing and drying up early in the summer. This plant is poisonous to cattle and sheep, but is especially injurious to horses. Misconception has confused with the locoes several leguminous plants which are either harmless or valuable as forage crops. However, there are only three true loco varieties.

Cure Valuable Animals

Most locoed animals can be cured, but they should be worth enough to warrant a somewhat extended course of treatment. The first and most important need is to supply them with plenty of nutritious feed, such as alfalfa, grain, oil meal, and proper pasturage, so that they will not be obliged to resort to loco weed for food. Medical treatment, such as is outlined fully in Farmers' Bulletin 1054, recently issued by the United States Department of Agriculture, should also be followed. Rapid recoveries can hardly be expected, as the condition existing in a case of chronic loco poisoning has been developed by weeks or months of loco feeding, which means that the rate of recovery must necessarily be slow. However, where the animals are treated carefully and conscientiously along the lines suggested by the United States Department of Agriculture, much valuable range stock may be saved.

Loco poisoning can be largely prevented by proper handling of live stock. As the stock commonly contract the habit of loco feeding in times of short feed, stockmen should provide plenty of good hay at such periods. On some ranges the loco weed has a definitely limited distribution and in such cases, if animals are kept away from the infested areas until the grass is started, few become locoed.

Kill Out Loco Weeds

It is relatively simple to clear out the loco plant by cutting the roots for two or three inches below the surface. However, as the seeds of loco plants live for years and do not germinate in the season following their growth, it is necessary to continue the extermination work for several seasons after the original plants have been killed. Many stockmen believe it is necessary to remove all of the loco roots in order to control the pest, but this is erroneous. Badly infested tracts of land have been cleared under the direction of the United States Department of Agriculture, and in many of these pastures kept under observation for 10 years very few loco plants have appeared. One ranchman in New Mexico reports the cleaning up of an 80-acre pasture and later on a pasture of eight sections where previously the weed had covered one-fourth of the total area. Although this work cost $3 an acre, it has been money well spent, as practically no trouble from loco weed has since developed.

SIOUX FOREST AREA DECREASED

The President on September 2 signed a proclamation eliminating approximately 18,000 acres from the Long Pine Division of the Sioux National Forest along the Montana-South Dakota State line. The action taken is on recommendation of the Secretary of Agriculture, based on a detailed land classification made by the Forest Service.

The lands were found not to be of value for National Forest purposes.

FACTS AND FIGURES NEEDED IN LIVE-STOCK INDUSTRY

Dr. John R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture, told the American Meat Packers' Association in session at Atlantic City that live-stock production and methods of marketing will never have any real stability until more is known about certain basic problems.

"It takes time and costs money to get those facts, but such information will be needed before there can be any real stability in live-stock production and methods of marketing. Only upon a substantial foundation of accurate knowledge is it possible to build enduring plans or policies which will have the respect of the public and become a real public service.

"The protection of public health will always be of paramount interest, but aside from that, perhaps the most important activity which I can commend to your attention is the collection of facts and figures relating to the live-stock industry. Federal meat inspection has resulted in important information leading to the control of animal diseases. We know, for example, that tuberculosis and hog cholera cause more than one-half of all condemnations in Federally inspected establishments. We need to know more about the condition of animals slaughtered under local inspection. We need to know the definite relation between the breeding of an animal and the value of different cuts of meat the carcass contains. I refer of course to the need for figures on large numbers of live stock. We need to know more about factors leading to rapid maturity, more about shrinkage, and more about the location of live stock and meat supplies in the country at any given time."

USE THE MUSCADINE GRAPES

Ordinarily the supply of muscadine grapes is so plentiful either in the vineyards or on the home grape arbors that are characteristic of a large part of the South that there is much waste, and this is particularly true on farms at some distance from market and shipping points. These grapes can be made an important addition to the winter diet, without the need of large quantities of sugar, so that the products are within the reach of all families. Also, not only are grape products cheap, but they are easily and quickly made.

It is recommended by the United States Department of Agriculture that the best varieties should be used in recipes, which will be sent on request.

Good Skinning Will Give Better Hides; How to Improve By-Product of Farm

The farmer who wishes to kill and skin an animal should select a clean, hard spot, under a tree if possible, or if indoors, a room with a concrete floor. In the latter case a block and tackle must be provided for swinging heavy animals, while outside a limb of a tree may be used for suspending the carcass. Before killing the animal should be cleaned off, curried, and brushed thoroughly in order to remove all dirt, and care must be exercised not to bruise or soil the hide or carcass in the subsequent operations of killing and skinning. The skinning knife should be sharp and should be used no more than is necessary, as special care must be used to avoid cutting the hide or skin. Skinning is done best and easiest before the animal heat has escaped, it being essential to leave all the flesh on the animal, as its presence on the hide or skin is very objectionable.

The operations of skinning are difficult to describe so that they may be followed easily, according to specialists of the United States Department of Agriculture. In fact, experience in flaying, especially of hides, can be obtained only by practice. It requires somewhat of a knack, and much patience and care must be exercised until the knack is obtained. No written directions can be as clear and effective as actual observation and trials. It is recommended that the farmer or small killer take advantage of any and all opportunities he may have to visit the larger killing establishments where proper methods are followed.

Skin the Head First

After stunning and sticking the animal in order that it may bleed properly, the operator should begin skinning the head, cheeks, and face, as this operation is easier to perform while the animal is still suspended. When skinning over the cheeks always leave the meat on the head, as one of the faults of country hides is the presence of more or less cheek meat. Remove the head by severing from the neck at the top of the spinal column, or atlas joint, leaving the horns on the skull and not on the hide.

The animal should then be completely lowered, placed on its back, and held in that position by using a spike stick as a prop, placing one end of it in the brisket and the other in the ground or floor. The legs should then be skinned out and the feet removed. The dewclaws should be cut off, and after the legs are skinned the hide should be ripped down the belly from the sticking cut to the tail, making this a neat, straight rip, free from jagged edges.

The sides should then be skinned by using the knife as a skinning medium, working forward to the brisket and then back to the inside of the hind leg, close to the tail, lifting away the hide with the free hand and stretching it tightly by pulling outward and upward against the knife. No wrinkle should be allowed to form under the hide as it is being removed, while a long, steady downward stroke should be used in removing it. The hide should then be skinned off nearly to the backbone, leaving it attached at the thighs and shoulders. The prop should then be changed, so that the other side of the animal may be skinned. Although proper skinning without scores or cuts requires considerable practice, a proper pattern requires only a sharp knife and straight, ripping, open cuts along the correct lines, as explained fully and well illustrated in the department's Farmers' Bulletin 1055, which now is available free on request.

Skinning at Front Legs

For the cut at the front legs, start at the center, ripping line well forward at the brisket and somewhat in advance of the front legs; draw the knife slantingly back to the union of the fore leg and body and continue the cut down the leg to meet that made when skinning the feet and shins. The same is done for the hind legs, starting at the center, about six inches from the tail, and cutting upward to the back of the legs, so as to correct with the cut previously made. While the animal is still down also skin over the rump and back side of the body.

Next insert the spreader, or gambrel, in the hind legs and raise the animal to a half hoist, so that its shoulders are resting on the floor. The next operation consists in removing the tail bone, which is done by ripping the hide down the underside of the tail to the brush or tip of the tail bone. Then the tail bone should be cut from the body and pulled from the hide, being sure to remove the entire bone, after which the hide is skinned away carefully from the base of the tail.

The hide should be removed from the hind legs and round by starting it with the knife and then by hitting or pounding with the fists, butt of the knife handle, or back of a cleaver, at the same time pulling on the hide by hand. This is the most valuable section of the hide, and it adheres so tightly to the animal that it is almost impossible to remove it with a knife without making detrimental cuts and scores. Hammering off is very satisfactory and is a sure way to prevent cuts. When clear of the back and round, the hide is generally snapped off to the flank. In skinning the back, very slight use of the knife is necessary, as the weight of the hide will almost pull it off. Care should be taken to see that the muscle tissue is not pulled off with the hide. When skinned down to the shoulders, the animal is raised clear of the floor, and the hide is then stripped off the neck, whereupon it is spread out and each ear is split with two cuts lengthwise, so that they will lie flat when curing.

Horse hides are removed in practically the same manner as hides of cattle. They are graded almost entirely on the condition of the butt or rear portion. Particular pains should be taken to keep the hide free from scores, cuts, and dragged spots. Tails and manes should be removed from the hides and sold separately.

MOSAIC DISEASE DECREASES SUPPLY OF SUGAR CANE

The spread of Mosaic disease in Louisiana, Georgia, Florida, and other Gulf States during the past two years has seriously curtailed the sugar-cane crops of those sections.

Foreign planters after long experience with the disease have developed efficient control measures for regions where Mosaic is present in small amounts. In badly infested regions it is essential to plant immune cane varieties, a number of which have been discovered. Methods for controlling Mosaic are based on the experimental findings that cuttings from infected stock invariably give rise to diseased plants, while infection of new individuals depends on the proximity of diseased plants; and that the infectious material does not exist in the soil. Consequently the elimination of all diseased cane by grinding, selection of clean seed for reseeding, and subsequent rogueing of the sprouted cane to eliminate diseased plants from infected cuttings which may have accidentally been introduced with the seed, are rational control measures and where carefully practiced almost assure a crop free of Mosaic infection.

The office of sugar plant investigations, Bureau of Plant Industry, United States Department of Agriculture, is making a rapid survey of the Gulf States in searching out the Mosaic disease, and as far as possible will supply information concerning the localities which are disease free. It is important that importations of large amounts of seed cane into such newly developed agricultural lands as those of southern Florida should be conducted with the greatest care and caution.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Exhibits for Dairy Show.

Educational exhibits dealing with the dairy industry in general and milk production and creamery management in particular will be shown by the United States Department of Agriculture at the National Dairy Show in Chicago, October 6 to 12. Most of the displays will be contributed by the Dairy Division of the Bureau of Animal Industry and others will come from the Bureau of Markets, the Bureau of Farm Management, and the Bureau of Plant Industry. Among the subjects to be treated in the displays are the effect on milk production of proper feeding, methods of cooling milk, packing of dairy products, control of animal diseases, fuel economy in dairy plants, value of milk as a food, judging of butter, business practices for the creamery and milk plant, forage crops and silage for dairy cows, systems of accounting for the average dairy farm, and the relation between the high and low producing cow and farm profits.

Complete information will be given concerning the "Better Sires-Better Stock" campaign, which will be inaugurated October 1 by the Federal department in cooperation with the State agricultural colleges and other agencies with the object of driving scrub and mongrel live stock sires into discard.

French Like American Canning.

France—the land where everyone is supposed to be a good cook—likes American methods of home canning.

Four home-demonstration workers were lent to France by the United States Department of Agriculture in June. They were to give demonstrations in the methods of home canning which have proved popular in the United States during the last decade. Their work in France has been attended with marked success. The first series of demonstrations was concluded early in August and the second was started.

In the first series the work, as planned by the Minister of Agriculture and carried out by the Americans, was the teaching of Agricultural leaders, who in turn will teach the French people. Among those who attended this first series were four directors of agricultural colleges, two chiefs, one inspector general from the ministry of agriculture, 21 professors from different agricultural colleges, four wounded French officers, the wives of some of the professors, one directrice, and two teachers of higher schools—about 100 in all. The series consisted of demonstrations in the canning of fruit, vegetables, meat, and fish. Between the two series a course in canning has been given to girls from the devastated areas. The second series, for teachers of movable schools, began the second week in August. Other countries, following the example of France, are asking for American demonstrators who can teach American methods of home canning.

Get Seed Potatoes Now.

Throughout Maine and other northern potato producing States, harvest is now on full blast. As the northern potato crop is below normal, both in acreage and yield, specialists of the United States Department of Agriculture recommend that the southern planters stock up immediately on seed potatoes for next spring's plantings. Such activity on the part of the southern growers not only will assure them of the necessary seed but also will enable them to secure high-producing, disease-free seed selected in the field at harvest time.

Truck Effects Studied.

A bulletin of wide public interest soon to be issued by the Bureau of Public Roads of the United States Department of Agriculture will deal with the subject of motor trucks, their rapidly increasing use in this country, and the effects on the highways of this new method of transporting freight. The research which forms the basis for this report, the investigators point out, is necessarily of a preliminary character, the bulk of their data having been obtained during a period when truck traffic on the highways was abnormally large on account of the war. Further study will be necessary to determine definitely the type of highway best suited to withstand this heavy traffic.

Army Posts Aid Fire Fighters.

All army posts in the West have been directed by the Secretary of War to open their stores to the Forest Service for the purchase in bulk of food supplies, blankets, work clothes, etc., needed for fire fighters. This action has been taken at the request of the Secretary of Agriculture and it is believed that it will largely overcome the difficulty which Forest officers have experienced in obtaining supplies from local sources in sufficient quantity to meet the present extraordinary demand. The new cooperative arrangement is the result of a request which was received from the district comprising California. All districts will profit by it, however. All told, more than 4,000 men are engaged at present in fighting fires, the drought in the Northwest this season being one of the worst in many years. Many of these men are assigned to fighting groups of 100 or more each, often located at points far from centers of civilization, and the use of the Army posts promises to relieve a situation that was rapidly becoming serious.

Weather Reports on Highways.

The highway weather service, one of the new enterprises of the United States Department of Agriculture, operated through the organization of the Weather Bureau, is proving of benefit to automobile owners where it has been tried. The meteorologist in charge of the Weather Bureau office in Kansas City, Mo., recently reported:

"The demand for a road reporting service is quite general and insistent and it will continue so, increasingly, until dirt roads become an anachronism. This office established a road or highway reporting service April 1 of this year and, without exaggeration, it is equal to the most practical service which our office otherwise can perform. It amounts to the direction of public motor travel, and persons start or postpone trips as we advise."

The highway weather service was begun as a war measure in aid of motor transportation and was conducted with emergency money until the end of the war. Though Congress made no appropriation for its continuance during the present fiscal year, the demand for it is such that the department is endeavoring to continue it without special funds to meet the expense.

Dobbin Wearin' o' the Green.

Dobbin, in his lifetime, may have worn black or white or tan, or even red, but when he passes over the meat block and presents himself to the housewife in the

form of steak or roast or anything like that, he will be decked in green. The meat-inspection service of the United States Department of Agriculture, in order to comply with the provision of the law that horse meat shall be conspicuously marked, has decided to stamp the meat with a harmless green ink. The Bureau of Animal Industry stamp is distinctively six-sided and bears the words "Horse Meat."

Horse meat is likely to be on the market in appreciable quantities shortly. A report has been received at the Department of Agriculture from Billings, Mont., that the initial shipment of a lot of about 2,000 range horses has been received for slaughter. A report from New Mexico says that 50,000 range horses in that State should be slaughtered.

An agricultural journal, recently commenting on the slaughter of horses for meat, said that the elimination of undesirable horses not only will save feed for more worthy cattle and sheep, but will add hides to the leather supply and increase meat stocks. Department of Agriculture experts say that hides from range horses that have lived in the open should be of excellent quality.

Corn Borer a Real Peril.

The European corn borer undoubtedly is a serious menace to American agriculture. The United States Department of Agriculture has for some time called attention to the extreme danger from this pest, which has become well established in both Massachusetts and New York. Now comes this reinforcement of that judgment:

"We, the National Association of Commissioners of Agriculture, with official entomologists from many States and representatives of the United States Department of Agriculture, together with representatives of the Canadian Government, present as experts in conference upon the situation, express ourselves, after examining the infested area, as thoroughly convinced that this pest is one of the most dangerous insects which has become established in America, and we hereby place ourselves on record in favor of most energetic efforts on the part of Federal and State agencies to control and, if possible, to exterminate this insect, including in the program vigorous quarantines to prevent its distribution."

That is a part of the resolutions adopted by the European corn-borer conference, begun at Albany, N. Y., on August 28 and concluded at Boston, Mass., on August 29. The State commissioners of agriculture, State entomologists and others went over the corn fields around Schenectady, N. Y., and Boston, Mass., and saw the methods of destruction practiced by the United States Department of Agriculture and the State agencies, together with the damage caused by the borer.

The commissioners of agriculture returned to their States convinced of the reality of the peril and of the necessity of unifying all efforts to protect the farmers of the country from a destructive insect that may quickly spread over very large areas unless most energetic control work is done on a large scale.

How Much Grain to Feed.

Specialists of the United States Department of Agriculture advise poultry keepers to feed about 1 quart of scratch grain and an equal weight of mash (about 1½ quarts) daily to 13 hens of the general purpose breeds, such as the Plymouth Rocks, Rhode Island Reds or Wyandottes, or about 16 hens of the smaller or egg breeds. This would be about 7½ pounds each of scratch grains and of mash daily to 100 Leghorns and about 9½ pounds of each to 100 general purpose fowls. If hens have free range or large yards containing green feed a general purpose hen will eat about 75 pounds of feed in a year, while a Leghorn will consume about 55 pounds in addition to the green stuff which she eats.

Demand for Southern Cabbage.

Specialists of the United States Department of Agriculture suggest on the basis of present crop conditions that southern truckers sow at least a normal acreage of cabbage seed bed this fall. The storage crop of the Northern States this year will not be heavy and indications are that the total cabbage acreage, as well as the yields, will be less than that of last season. Southern growers are advised to keep close watch of the storage reports which will be available previous to the time when they transfer their cabbage plants to the field.

Banish T. B. by Ballot.

"Election Clay County favors tuberculosis eradication."

The foregoing telegram, received September 5 by the United States Department of Agriculture, marks the favorable result of a referendum vote in Clay County, Miss., the first ever polled in the United States on the subject of controlling bovine tuberculosis.

The farmers, stockmen, and citizens of that area had petitioned the county commissioners to hold a special election to decide whether tuberculosis-eradication work should be undertaken and made compulsory. As a result of the favorable vote, tuberculosis eradication and the county-wide testing of cattle will be undertaken immediately.

Although, according to department records, Clay County, Miss., is the first in the United States to adopt tuberculosis-eradication work by the ballot, counties in Southern States have voted on tick eradication for a number of years.

COTTON FROM NEW FIELDS

The fourteenth annual report of the British Cotton Growing Association states that the number of 400-pound bales of cotton produced in new fields of the British Empire was 82,350 in 1914, 75,200 in 1915, 78,800 in 1916, 72,600 in 1917, and 54,900 in 1918. Two or three counties in our cotton belt produce as many 500-pound bales as these. The "new fields" are in West Africa, East Africa, the Sudan, the West Indies, and in minor countries whose combined production has not exceeded 5,000 bales. The association's efforts are directed by British cotton manufacturers with the object of making them less dependent on American cotton.

DRY SOILS AND SOILS THAT BLOW

Farmers of the Pacific Northwest who practice dry farming, particularly those who operate in the Columbia and Snake River Basins, will find questions of vital interest to them discussed in Farmers' Bulletin 1047, just published by the United States Department of Agriculture. The more progressive farmers of this region have developed methods of handling summer fallow that bring much higher wheat yields than those that have been generally followed hitherto. This bulletin describes in detail these improved methods as applied on both "blow" and "nonblow" soils.

Club girls not only learn how to produce but also to conserve, pack, and market their products, and are helped and guided in the use of the income which they derive from the work of their hands.

To save money by going without necessities is bad economy but to waste anything lessens your wealth, the wealth of your country, and the wealth of the world.

Thrift is steady earning, wise spending, sane saving, careful investing, and the avoidance of all waste.

Dust furniture frequently. For fine upholstery and carvings use a soft pointed brush; for heavy upholstery and reed furniture use a medium soft pointed brush; for leather use an oiled duster.

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MARKETS BUREAU
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FIVE-YEAR AVERAGE IS GUIDE FOR FALL WHEAT PLANTINGS

Department Bases Farming Suggestions on Foreign Conditions

Recommends Sowing of Acreage to Produce 830,000,000 Bushels as Total for 1920—Other Crops Discussed

More wheat should be sown this fall than was the average in prewar years, but not so much should be sown as was sown last year. This is the outstanding fall-farming recommendation of the United States Department of Agriculture, which is watching the changes of world supply and demand while European countries are getting back to normal in food production, and thus affecting the market for American products. The department's suggestions are based on the observations of specialists who were sent abroad to report on foreign conditions and probable needs, and on the most extensive reports it has been possible to obtain from other sources in this country and other countries.

Five-Year Average Safe

As to winter wheat, the department suggests that 42,000,000 acres be sown this fall to this crop, and that 20,000,000 acres be sown in 1920 to spring wheat, making a probable aggregate production in 1920 of 830,000,000 bushels, of which 200,000,000 bushels would be available for export after home needs are met. This production would approximately equal the average yield of wheat in the United States for the five years 1915 to 1919, inclusive. The five-year average is thought to be a safe guide for American farmers.

The suggested acreage for fall-sown wheat is approximately 85 per cent of the area sown in the fall of 1918 and is about the same as was sown in the fall of 1917. The suggested area for spring wheat is approximately 88 per cent of the area sown in each of the last two years. The combined acreage of winter and spring wheat suggested for 1920 is about 86 per cent of the acreage sown for the 1919 crop, slightly more than the acreage sown for the bumper crop of 1915 and about 4 per cent less than the area sown for the 1918 crop.

The pressure of war demand for rye has ceased and it does not seem probable that exports next year will greatly exceed 25,000,000 bushels. Consumption of rye in this country was stimulated by the war to about 50,000,000 bushels. If this rate of consumption is maintained a crop of 75,000,000 to 80,000,000 bushels would be necessary to provide 25,000,000 bushels for export, indicating a total acreage of 5,500,000 to 6,000,000 acres, in comparison with 6,800,000 acres sown last fall.

"In any consideration of the probable foreign demand for American wheat and rye based on pre-war consumption experience," says the department, "a greatly increased transportation cost and the existing condition of international exchange can not be disregarded. * * * It seems clear that if the foreign exchange situation continues as it is or becomes more abnormal it will constitute a powerful stimulus for some foreign countries to seek grain in countries other than the United States, or to produce it."

It is probable that several years will be required for European countries to get back to their normal cattle population. In order to supply their needs it will be necessary for them to import dairy products, and at the present time this country is supplying large quantities. Last year's exports were so large that about 2,000,000,000 pounds of milk were required to make the products, or 100 pounds from each cow in the United

(Continued on page 3.)

"DER TAG" FOR SCRUB SIRES.

October 1, 1919, may not seem markedly different from other days, but to America's live-stock industry it is a day of days, for it inaugurates the Federal and State onslaught against scrub sires.

By the time the earth completes another cycle the nondescript mongrel males of the breeding world will be en route on a nonstop journey to oblivion. It is hoped that ere October 1, 1919, has many anniversaries the exit of the inferior herd headers and flock leaders will be complete and that the United States will be scrub free.

INSPECTION FOR ALL MEAT URGED TO COMPLETE SYSTEM

Animal Industry Chief Tells of One-Third Unsupervised

Many Cities Maintain no Inspection of Any Kind, and Much Meat is Not Subject to Federal Regulations

The stability of the live-stock and meat industries of this country depends on public confidence, and until the public has assurance that all of its meat is wholesome the work of establishing public confidence will be incomplete. At present about two-thirds of the meat supply is Federally inspected and stamped accordingly by the United States Department of Agriculture, but until something effective is done toward insuring proper inspection of the remaining one-third, which is slaughtered and sold entirely within State boundaries and over which the National Government has no direct authority, the public, as a whole, can never feel certain that the purity and wholesomeness of its entire meat supply is assured.

Many Cities Lack Inspection

Those statements were emphasized by Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the United States Department of Agriculture, in a recent address before the American Meat Packers' Association in session at Atlantic City. The Bureau of Animal Industry, he said, has just completed a survey of municipal and State meat inspection. The data gathered shows that less than one-third of the cities in the United States with a population of 5,000 or more maintain any kind of meat inspection. Where inspection is maintained it is frequently incomplete. Less than one-fourth of the cities reporting indicated that ante-mortem examinations are made and in many cases little assurance was furnished that condemned meats were actually withheld from distribution.

"If your association has not already taken an active interest in municipal and

State inspection," Dr. Mohler continued, "my remarks would be incomplete if I did not urge upon you a close study of the conditions and problems."

The days of resisting inspection, he said, are past, as is the idea that a mere pretense of inspection is acceptable to the public. The destruction of condemned meat, he insisted, is no more wasteful than condemning the use of wooden cars in a train of steel cars.

Any inspection worthy of the name, Dr. Mohler stated, must be thorough, including an examination both before and after slaughter and a study of the organs as well as the meat itself. Such inspection can be given at low cost. The Bureau of Animal Industry maintains its thorough inspection service at a cost to the people of less than 6 cents for every animal slaughtered. That amount covers both ante-mortem and post-mortem inspection and the final examination of the finished products.

Only Interstate Meat Affected

Federal inspection applies to all slaughterhouses and packing plants engaged in interstate or export trade. Where the products of the establishment are consumed entirely within the State the National Government has no authority to inspect the animals it slaughters or the products it sends out. It has been found that Federal inspection covered, in 1918, 75.1 per cent of cattle slaughtered, an increase of 13.7 per cent over the corresponding figure in 1914. In the same period the per capita consumption of beef increased 13.3 per cent. Dr. Mohler thinks that, while the similarity of the figures may be largely a coincidence, it is logical that Federal inspection of meats has had something to do with the amount which people eat. In view of such conditions, he said, it is obvious from the standpoint of public service that plans should be made that will insure the people of the country wholesome meat and ample supply. He told of a woman who recently appeared before the city council of San Diego, Calif., which was debating changes in local meat regulations. She told the council there were three reasons why she did not want to see anything but Government inspected meat in San Diego, and thereupon introduced her three children to the council. She explained that Uncle Sam demanded Federal inspected meat for his soldiers and sailors and that her children were just as valuable to her as Uncle Sam's were to him.

Someone is saving what you spend foolishly. Who is depositing your dollars? Invest them in War Saving Stamps and save them yourself.

WAR AGAINST SCRUB SIRES LAUNCHED IN WEST VIRGINIA

Parts of State Soon to Be Ruled by Purebred Bulls

State Officials and County Agents Lead in Movement for Better Beef and More Dairy Products—Movement Spreads

West Virginia—largely regarded as a mineral-producing State—is on the warpath to increase beef cattle production and its output of dairy products by eradicating scrub bulls, which are primary offenders against profitable and progressive live stock husbandry. Within a few months parts of West Virginia where the campaign is most active expect to round out a clean-up which will eliminate the scrub bulls and leave the purebreds as monarchs of all they survey. The case of Roane County, W. Va., is an example of what West Virginia stockmen accomplish when they go over the top. The live stock specialists of the State agricultural college, the county agent and officers of the Roane County farm bureau have solidly backed up the scrub sire clean-up.

"Not a single man turned us down," remarked the live stock specialist in telling how the campaign to oust the scrubs was conducted.

"The first of the year our local stockmen made a declaration of independence against scrub bulls, and work was begun promptly in taking a thorough bull census. This investigation of sire ancestry showed that there were 200 bulls in the county, of which 102 were misfit grades and scrubs, while 98 were registered purebreds. There were 57 registered Herefords, 28 registered Angus, and 13 registered Shorthorns. Fortunately, the army of 102 grades and scrubs was not as formidable as it looked on paper because 60 of these low grade sires were yearlings. Furthermore, the census showed that there were only 30 men who actually made a practice of keeping a scrub bull."

By correspondence and personal contact with farmers the State live stock agent and the county agent waged the battle. These men toured the county day after day visiting the scrub bull owners, holding meetings, and requesting influential farmers to assist in relegating the scrub sires into the live-stock scrap heap. In the main the scrub bull owners, once they learned the purpose of the campaign, and once they appreciated the benefits which would result if they substituted purebred sires for the mongrels, were glad to dispose of their inferior herd-headers. Detailed figures showing the increased value of calves sired by purebreds over calves of scrub parentage were particularly convincing in gaining converts. Most of the scrub bull owners were prompt in admitting the error of their live-stock raising ways.

How One Bull Went

At one meeting a man who owned a scrub bull refused to banish him from his farm.

"That bull of mine is a good one," he declared. "If I sell him for beef I will get about $50 for him. He is worth every cent of $80. I am not going to sell him for beef and lose about $30, because I can not afford to do it."

"I will throw in $10 to get rid of that bull," replied the live-stock specialist.

"Here's $10 more for the same cause," said the county agent.

This reduced the bull owner's belligerency but he still stuck to his guns. Then the president of the local farmers' club stepped forward and said, "That bull goes to the block. Here's the extra $10 to round out the price."

Such scenes as this characterized the passing of the scrub and the victorious conquest of the pure bred. In a single day five scrub bulls were sold out of one community and Roane County is scheduled to go scrub-sire dry early in October.

Breeders Organize

The Roane County banks have aided the movement to replace poor bulls with good ones. Every bank in the county has offered to lend money at 5 per cent to farmers for the purpose of purchasing purebred sires as substitutes for their scrubs. Although Roane County was the first to strike its stride, and has since maintained the lead in the race to eliminate scrubs, Taylor County has followed closely on its heels, and has organized a Hereford Breeders' Association, which is achieving pioneer work in banishing "bum bulls." The Monroe County livestock owners have organized a purebred short-horn association, while the Marshall County Purebred Live Stock Breeders' Club and the Greenbrier Valley Short-horn Association, including Monroe, Greenbrier, Pocahontas, Summers, Raleigh, Fayette, and Mercer Counties, have also been formed to aid in livestock improvement.

Two years ago there was not a single registered bull in Hardy County. At present 12 creditable registered bulls are owned there, and at least six are worth $500 apiece. Kanawha County, though one of the last to enroll against the scrub sire, has just completed a list of all the grade and scrub bulls in that section, and is now preparing a drive against them.

What Is Required of Those Who Join National Crusade for Better Sires

The campaign which the United States Department of Agriculture, in cooperation with the State agricultural colleges and other agencies, will begin on October 1 against the scrub sire has created so much interest and has resulted in so many inquiries being received by the department that the following list of typical questions and answers has been prepared to inform more fully concerning the drive for "Better Sires—Better Stock."

Question. Need a person keep all the classes of live stock in order to take part in the crusade?

Answer. By no means. He may keep only one class or several classes.

Question. If a person has no live stock but wishes to join the campaign, may he be enrolled?

Answer. No; not until he becomes the owner of live stock. The person with even one breeding animal, however, is eligible. If a male, it must be a good purebred. If a female, it may be of any quality, but must be bred to a good purebred sire.

Question. If a person enrolls and then finds it too difficult to comply with the requirements, may he withdraw?

Don't Join Until Ready to Comply

Answer. Yes; he may withdraw by returning the official emblem, with an explanation of the circumstances. But persons contemplating such a course are advised to defer enrollment until they can comply with the conditions.

Question. If a person has purebred sires in all classes of animals he raises to sell but intends to breed his work mares, for instance, to a scrub or grade stallion and to raise the colts for farm work, is he eligible to enrollment in the campaign?

Answer. No. Horses are included among the classes named and the mares must be bred to a purebred sire. (The classes are horses, cattle, sheep, swine, goats, and poultry.)

Question. When poultry, for instance, are on range and a neighbor's inferior sires are with them, how is it possible to comply with the requirements?

Answer. The requirements are not violated unless chickens are raised from the eggs of hens sired by such males. It would be preferable, however, to induce the owner of the inferior roosters to dispose of them. In any case the breeding birds of a person enrolled in the campaign should be confined to his own premises, and other males fenced out during the breeding season.

Question. Who is to determine whether sires are of good quality as well as being pure bred?

Answer. While the opinions of the owner and others who have examined the stock will be accepted, it is suggested that he consult also an experienced judge of live stock before filling out his enrollment blank. Sires which are diseased, undersized, or otherwise inferior, even though purebred, should be avoided. Information on desirable types of live stock may be obtained from the Department of Agriculture.

Sires Should Be Registered

Question. Need purebred sires purchased be registered?

Answer. Purebred animals bought or sold preferably should be registered as a proof of pure breeding.

Question. If a person has a grade sire, a bull, for instance, of exceptionally good type and which resembles a purebred and he intends to get a registered purebred bull later, can he be enrolled in the campaign?

Answer. Not until he stops using the grade bull as a sire. It is suggested that he sell the grade bull, and, until he obtains a purebred bull of his own, breed his cows to a good purebred bull owned by some one else. In that case he would be eligible to enrollment .

Question. May children be enrolled and is there any age limit?

Answer. There is no age limit. Children who own live stock and who are able to sign their names and comply with the requirements may be enrolled. Children interested in live stock should be encouraged to enroll.

Briefly, a person must believe that the scrub rooster and the scrub boar are as objectionable, in principle, as the scrub bull. There must be clean sweep of inferior sires if the owner wishes Uncle Sam to officially enroll him in the "Better Sires—Better Stock" crusade. But the conditions are easily fulfilled by persons who, realizing the need for live stock improvement, are ready to put their beliefs into actual practice.

SAVED BY COOPERATION

An instance of the value of cooperative buying is found in the recent action of a group of farmers in Orange County, Fla., who combined their orders for carbon bisulphid and placed them through their county agent. The purchase totaled 1,000 pounds and the material was secured at a saving of 38 cents a pound under the price that would have been charged for individual purchases in small quantities, so that the deal represented a saving of $380 to these farmers. This carbon bisulphid will be used in fumigating the corn to kill corn weevils. Losses from this source sometimes are as much as 20 per cent. The farmers who are planning to fumigate their corn either have remodeled their old cribs to make them airtight or have built new ones.

FIVE-YEAR AVERAGE IS GUIDE FOR FALL WHEAT PLANTINGS

(*Continued from page 1.*)

States. The department expects that exports will decrease and imports will increase with the exception of condensed milk. It recommends that dairymen give particular attention to economical feeding, through the buying of concentrates in large lots or the cooperative buying of feeds; attention to pastures that have been allowed to run down; attention to the feeding needs of their cows by the use of cow-testing associations; and the best use of labor and labor-saving devices.

Live Stock

"What our foreign trade in meat and meat products will be in the future is impossible to predict with any degree of accuracy, owing to many factors which may affect it," the department says. "The exports will probably decrease as compared with the past year, as the European countries increase their production of live stock toward the pre-war production."

Other factors affecting American export trade are rates of exchange, which in many cases are decidedly unfavorable to those countries most in need of our meat and meat products; campaigns being waged in the European countries for increased production and decreased consumption; prices of meats and meat products in this country as compared with the prices in other countries having meats for export; available ocean tonnage for shipping from other countries.

However, pork exports at least probably will be greatly in excess next year of the pre-war annual exports. The European countries probably will require two years to get back to pre-war pork production, and their present needs are great.

Pre-war production of poultry in most European countries, the department says, will soon be resumed. Emphasis in this country is placed on more efficient methods of production. Whether increased production should be undertaken must necessarily depend on local conditions as to feed, labor, and other factors.

Weekly News Letter

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GOOD DEMAND LIKELY FOR SOUTHERN TRUCK CROPS

The outlook for Southern truck-crop production in the spring of 1920 is even more promising than that of 1919. This statement is made by the United States Department of Agriculture in its official fall farming suggestions. One of the important elements in producing this favorable situation for Southern truckers is the fact that the potato crop bids fair to be 32,266,000 bushels short of the 1918 crop. Southern potato growers, the department advises, would do well to secure their supply of seed for winter and spring planting while the Northern harvest is in progress, in order that tubers may be secured from disease-free crops.

Bermuda onion growers have a brighter outlook than has existed during the past two seasons. The estimated autumn harvest of onions is more than 2,000,000 bushels short of that of last year and more than 1,000,000 bushels short of that of two years ago. With normal distribution and consumption, the competition of Northern-stored onions with the Southern Bermuda crop in the spring of 1920 is likely to be less severe than during the season of 1919 or that of 1918. In planning the acreage for the 1920 harvest, however, Southern growers should bear in mind the fact that severe financial loss resulted at the harvest of 1918 from the excess acreage planted in the fall of 1917.

The cabbage crop in the nine Northern States in which late summer cabbage is extensively grown bids fair to be the smallest harvested since 1916—almost 200,000 tons less than in 1918 and nearly 100,000 tons less than in 1917. The short crops of both cabbage and potatoes this season more nearly approach the conditions of 1916, when both these vegetables were scarcer and higher than in any other year during the past decade.

"Southern cabbage growers will therefore do well," the Department of Agriculture concludes, "to provide ample seed beds from which to plant an acreage sufficient, in a measure, to make up the deficiency which will exist in those markets where stored cabbage usually plays an important part."

SUCCULENCE FOR STOCK FROM SORGHUM SILAGE

Sorghum silage, according to United States Department of Agriculture specialists, promises to become a champion yielder of winter succulence, not only for dairy cows but for other live stock which relish canned crops. Unfortunately, when sorghum was first used for silage purposes many growers cut the sorghum too early, so that when the material was removed from the silo for feeding it was sour and acid, and live stock rejected it. As a result, sorghum gained an evil reputation, although experiments have demonstrated that it is one of the most admirable crops for ensilage purposes that can be grown in the Great Plains region.

In five years' experiments at Hays, Kans., the average acre yield of sweet sorghums was 10.34 tons, as compared with 8.06 tons of kafir and 3.8 tons of corn. In eastern Kansas, where the rainfall is 30 inches or more, on fertile soils sweet sorghums have yielded 18.2 tons an acre, as compared with 11.88 tons of kafir and 11.81 tons of corn silage. Detailed feeding experiments have shown that sweet sorghum silage is proportionately equal to corn and kafir silage for either beef production or the maintenance of stock animals, although for dairy cows this variety of ensilage is less productive because of its low content of protein.

Acidity is Low

Sorghum silage should be cut when it is mature, its ripeness being denoted by the presence of hard seed. The test for ripeness is when the seed will crack when crunched between the teeth. When cut at this time it produces a fine-quality silage which keeps well and is more keenly relished by cattle than corn silage. Experiments show that the average acidity of corn silage is 2.03 per cent, that of sweet sorghum silage is 1.46 per cent, and that of kafir silage is 1.43 per cent.

The United States Department of Agriculture does not advocate the growing of sorghum for silage in specialized corn-producing localities, such as Illinois and Iowa. However, the utilization of sorghum as silage is recommended in the Great Plains section, and also in the Southeastern States, where this cane crop will produce greater yields and better ensilage than will corn.

In case a dairy farmer wishes to raise an ensilage of practically balanced composition—assuming that his location is in a territory where both these crops may be profitably produced—a mixture of velvet beans and sorghum is very satisfactory. This combination is high yielding and produces a succulent canned feed which is very productive of both milk and meat. An objection to velvet bean growing in combination with sorghum is that the crop has to be cut by hand, as it usually is densely matted and twined together so as to render impossible the use of a corn binder.

An Arkansas grower reports yields of from 12 to 14 tons an acre of velvet bean and sorghum silage. Ordinarily under Kansas conditions—and the conditions in Kansas are fairly typical of a large portion of the Great Plains area—sorghum is ready for harvest as ensilage about two weeks after corn is properly dented, glazed, and filled for harvest and storage in the silo.

LATE 1918 POTATO CROP BELOW LAST YEAR'S MARK

The late commercial potato crop now for the first time receives a separate report by the Bureau of Crop Estimates, United States Department of Agriculture. For the date of September 1, the condition of this crop indicates a yield of 123,518 carloads, or considerably above the estimate for the same month last year, 146,048 carloads. Late potatoes raised for local supply and all other late potatoes not entering distribution by carloads are not included in these estimates. One carload equals 700 bushels.

In nearly every State the production of the late commercial crop of potatoes falls below that of last year. Pennsylvania is a prominent exception, with a gain of 1,030 carloads over last year, and yet that State produces, this year, less than 6 per cent of the total of all States. Maine has a prospect of 24,468 carloads, Minnesota 24,000, Wisconsin 20,800, Michigan 10,275, Colorado 10,030, New York 9,370, Pennsylvania 6,980, and Idaho 6,640 carloads.

The wool clip of this year in the United States is 3.3 per cent above that of 1918, as estimated by the Bureau of Crop Estimates, United States Department of Agriculture, and amounts to 257,000,000 pounds, not including pulled wool. The production of 1918, including pulled wool, was 300,000,000 pounds, and of 1917 about 282,000,000 pounds.

Progress of Milk from Cow to Consumer Shown by U. S. at National Dairy Show

The United States Department of Agriculture will participate in the National Dairy Show at Chicago, October 6 to 12, not only to honor the dairy cow, but also to further the principles and practices of good dairying, and to transmit to the thousands of dairymen and farmers expected to assemble there the most recent results of cow handling, milk producing, and dairy management investigations of the Dairy Division of the Bureau of Animal Industry. Other branches of the department also will show their work for the dairy industry.

One of the most interesting of the Dairy Division exhibits will show the exact amount and kinds of food required to keep a cow for one year. A farm scene will show a hay stack and a fodder rick, containing the necessary amounts of dry forage; a silo, 5 feet in diameter and 11 feet high, which will hold the silage necessary for the cow; and a large pile of ear corn and the mill feed in sacks which the cow will eat during the 12 months. Furthermore, a part of the area will be sodded to illustrate the amount of pasturage necessary to maintain the cow. A huge milk bottle 4½ feet wide and 9 feet high, with a capacity of 6,000 pounds of milk, will be used to illustrate the cow's production. To complete the picture a cow and calf of the type which would consume the feed and convert it into the amount of milk exhibited, will be on hand. The amounts of feed and the milk supplied are actual averages of results obtained by the Dairy Division from practical tests with dairy farmers in northern Indiana. A small milk house, wherein will be demonstrated the proper methods of cooling milk, is also part of this feature.

Will Show Creamery Products

An extremely interesting and valuable exhibit from an educational standpoint will be that of the products of the Grove City (Pa.) Creamery, which form the connecting link between the laboratory and the commercial creamery. These products are all made by processes worked out in the Dairy Division laboratories and applied to actual factory conditions. Chief among them are various American-made cheeses of foreign type, such as Swiss, Camembert, Roquefort, and Ricotta. Exhibits of butter packed for shipment to the tropics, cottage cheese, the manufacture of casein for commercial purposes, condensed skim milk in bulk, and also a creamery laboratory in operation, demonstrating the actual tests of butter, milk, and cream used in commercial concerns, also will be shown.

A special booth will circulate information about the "Better Sires—Better Stock" drive which the United States Department of Agriculture will conduct in cooperation with the State agricultural colleges and other agencies, beginning October 1. The plan is to provide an official emblem, a sort of certificate, to each owner of cattle, horses and asses, hogs, sheep, goats, or poultry who uses only pure-bred sires, no matter if he or she possess only one animal of the classes of domestic stock specified. It is anticipated that the competitive spirit will be developed among farmers throughout the country to obtain the "Better Sires" emblem and in this way the scrub and mongrel stocks will be driven farther and farther into discard.

The dominant breeds of live stock in each county are to be determined and a live-stock index of the country by counties will ultimately result from these statistics. A breed will be called dominant whenever 100 or more of the farmers in that county who maintain animals of that breed are awarded official emblems of the "Better Sires—Better Stock" project. Each farmer must show conclusively that all the sires which he uses are pure-bred animals of quality and merit before the "distinguished-service cross" for stockmen will be presented by Uncle Sam.

Children in Milk Play

Theatrical possibilities also have not been neglected, as a play staged by school children and called the "Milk Fairies" will be presented twice a day. In this little sketch the fairies appear with a large milk bottle, representing the dream of a child; the various sprites typify the constituents of milk, such as sugar, water, protein, ash, fat, vitamines, and calories. This juvenile play is designed to spread information concerning the food value of milk.

As special mountainous sections of the South are well adapted for cheese production, because of such natural advantages as a favorable climate and adequate water supply, the Dairy Division fostered the development of cheese making in these regions, which otherwise, on account of their inaccessibility and rugged topography, are not adapted to profitable farming. An exhibit of cheese made in these mountain sections will be shown, while complete information will be supplied concerning the "how," "why," and "when" of its manufacture. Other educational exhibits which should attract special interest deal with animal diseases, typifying with models and charts the prevalence of various diseases among dairy herds and the means of combating them.

Other booths will be devoted to displays on cow-testing work and bull association campaigns. An electric map of all the cow-testing and bull associations in the United States will be a feature of this exhibit.

Exhibits of Other Bureaus

The Bureau of Markets will have on display an exhibit or demonstration on grading butter, according to market demands, as well as a complete exhibit of business practices for the creamery and milk plant. This bureau will also show how it gathers market news reports by the use of telegraph and tickers.

The Bureau of Plant Industry will exhibit forage crops which are adapted to dairying, as well as various kinds of silage which can be profitably converted into milk. The Bureau of Farm Management will be in charge of a demonstration of accounting systems suitable for use on the average dairy farm, and it will also show the results of survey work on dairy farms in different sections, demonstrating the relation between the high and low producing cow and farm profits.

For Fuel Conservation

With fuel scarce and extremely costly, fuel economy in the operation of dairy plants is more essential than ever before. Hence the exhibit on methods of fuel conservation, which will show how the ordinary losses of coal in commercial plants may be eliminated by the use of exhaust steam and methods of saving by-product power. A booth will be devoted to dairy statistics which will show by charts and models the imports and exports of dairy products, as well as the consumption per capita of these commodi-

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POISON SAVED HIS CROP

The hired man on a fairly large dry farm was the official poison mixer for his community in the Elmore County campaign against ground squirrels. He was cutting a fair crop of wheat with a combine, according to the University of Idaho Extension Division, when the county agent approached him.

"What was your saving this year as a result of your treating for squirrels," asked the agent.

"The crop," replied the hired man.

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ties not only in the United States but also in foreign countries.

Other booths will show how dairy utensils may be sterilized under actual farm conditions and demonstrate the value of milk as a food, utilizing electric devices to show the energy supplied by various foods.

Will Serve Free Buttermilk

The department show will not be without its "pink lemonade" touch, as lemonade buttermilk, Bulgarian buttermilk, koumiss, and ordinary buttermilk made by dairy specialists will be served free to visitors, with the idea of popularizing these valuable food drinks as well as instructing manufacturers and dealers how to make them properly. There also will be a special restaurant on the grounds, conducted under the auspices of the dairy division and serving moderate-price luncheons composed entirely of delicious dishes made from dairy products. Specialists of the dairy division will devote their entire time to explaining the exhibits and furnishing information to dairymen, creamery men, and all others interested in the dairy business.

Photographic Exhibits Offered by Forest Service to Schools

New photographic exhibits on "Forestry and Nature Study" and "Farm Woodlands" may now be borrowed from the Forest Service, United States Department of Agriculture, by schools and libraries. The "Forestry and Nature Study" exhibit is a pictorial story of how trees grow, and of the buds, leaves, flowers, and fruits, the typical forms of trees, the different kinds of forests, and the influences that affect their growth, and the enemies and friends of the forest. The "Farm Woodland" exhibit, which is especially adapted for use in agricultural and rural schools, shows different types of woodland, how the farmer can use the woodland and sell the product, and how trees make waste land profitable and help the farmer in other ways. The exhibits are made up in panel form, each panel consisting of 4 sepia enlargements.

Teachers who are interested in the forests in a more general way will find what they need in the original photograph exhibits of the Forest Service, which show forest conditions in the United States, how the forests are used, and how they may be preserved.

For classes in manual training and the like there are exhibits of commercially important woods of the United States with explanatory charts and tables. Schools that have a lantern, or can provide one, may borrow sets of lantern slides with prepared outlines for lectures on many topics connected with forestry. For instance, there are sets on forestry in the United States, and on nature study, botany, manual training, geography, and agriculture in relation to forestry, and on street trees and windbreaks. Recently a set has been made up on recreation in the national forests. Lists of subjects and other details may be secured on application to the Forest Service, Washington, D. C.

Working to Stop Wheat Scab Damage; Department Urges Good Seed and Plowing

Investigations by the United States Department of Agriculture, in cooperation with a number of State experiment stations and individual farmers, aim to learn more about wheat scab and methods of controlling it.

No entirely satisfactory control of this disease has been developed, because the scab fungi develop on so many different kinds of grains and grasses and on cornstalks, stubble, straw, and other trash. Two things, however, are regarded as important. First, the best wheat obtainable should be used for seed. This should be thoroughly cleaned and treated by the formaldehyde method recommended for the prevention of smut. Second, this wheat should be sown on thoroughly plowed land—land where the old cornstalks, wheat stubble, and grass straw have been entirely plowed under. This can be accomplished by use of a drag chain. All grass and straw should be burned or otherwise removed from hedges, fence rows, fence corners, and near-by waste places. These waste places should be either plowed or burned off.

Wheat Scab Takes Heavy Toll

Winter wheat everywhere east of the Great Plains was heavily infected with scab this year. Spring wheat also suffered greatly, and many spring wheat fields were left uncut, due chiefly to the ravages of scab. The States suffering the greatest losses of both spring and winter wheat include Missouri, Iowa, South Dakota, Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland, Virginia, West Virginia, North Carolina, Kentucky, and Tennessee.

This disease of wheat is caused by several different fungi, which attack the crop at various stages of development. The seedlings are blighted, the roots rotted, and the plants weakened to such an extent that they are winter killed. The heads are blighted, the diseased parts die and prevent the formation of well-filled kernels. The head blight is the most evident, and in most cases causes the most damage. Wheat from fields with only a moderate scab infection is light in weight, and therefore grades as No. 3 or lower. The farmer, then, not only loses from a reduction in yield, but from a lowering of the grade as well.

On July 1 the estimated total wheat production was 1,160,678,000 bushels. The corresponding estimate on August 1 was 940,381,000 bushels, a shrinkage of 220,297,000 bushels. While much of this reduction is due to weather conditions and to black stem rust, leaf rust, and other diseases, by far the heaviest toll was taken by the so-called blight or scab.

Scab Fungus Attacks Corn

Of those fungi known to cause scab in wheat, the most important one also attacks corn. One of the ways it lives over winter is on the decaying cornstalks left on the ground in the fields. Wheat is often sown on the corn land with these cornstalks left on the surface. The following season the fungus spreads from the infected cornstalks to the wheat heads, and causes blighting.

In addition to wheat and corn, the disease attacks rye, oats, barley, and many grasses. The scab fungi also live over winter on the infected stubble and decaying straw left on top of the ground, and on infected grass stems left around the edges of the field. These fungi spread from this material to the next season's crop.

It is a common practice in some sections of the winter wheat belt to spread straw on the winter wheat after the ground is frozen, in order to hold the snow. Clean straw from winter wheat, spread on the fields late in the winter, after the ground is frozen, is not dangerous in spreading scab to the next year's crop. This straw holds the snow and moisture and prevents the plants from being broken by the wind. When plowed under the next summer, it adds humus to the soil. Turn the stock into the straw piles from the badly diseased wheat, and spread the manure on the ground the following year. Such straw should never be spread on the fields, for it is sure to carry scab into next year's crop.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Wood Users Consider Forestry.

When representatives of the States and wood-using industries of Ohio, Indiana, and Illinois meet in Indianapolis in a tri-State public conference arranged for October 22 and 23, the purpose will be to consider the need for forest conservation on private lands and its relation to various wood-using industries. Furniture manufacturers and vehicle builders are among the interests concerned.

Representatives of the Forest Service, United States Department of Agriculture, will emphasize the need of greater conservation of private forest resources throughout the country, and the conference will consider particularly what remedial measures are practicable in the three States named. The time is not far distant, according to the foresters, when wood users in many sections of the country will be compelled to draw on forests more than half way across the continent for their raw materials, and it is believed that the transportation charges under such conditions will be almost prohibitive.

Attention is called to the fact that two months ago the Railroad Administration placed an order in the vicinity of Puget Sound for a large number of railway ties for delivery by water to North Atlantic ports. Necessity for such action, it is pointed out, could be entirely avoided if each region would adopt a policy of conservation which would make the annual growth of the forest more nearly balance the annual cut. This would end the destructive policy of stripping the land of all available timber as rapidly as possible.

A Better Berth for Bossie.

The American dairy cow, beauty that she is and has always been, has never made very much of a reputation in Europe until the war destroyed so many of the native milk producers. Now, the American dairy cow is crossing the ocean pretty freely, and the United States Department of Agriculture, largely for her benefit, has revised its regulations governing the inspection, humane handling, and safe transport of export animals. The regulations, in the first place, were fixed mainly for beef cattle. A dairy cow that is to live her life out and bear a responsible part in the upbringing of a human family requires more careful handling than an animal that is to be slaughtered. Consequently, better arrangements have been made for stalls, an adequate number of attendants is stipulated, and more careful handling in general is required.

TB Men to Meet.

A conference of all the State and Federal live-stock sanitary officials interested in bovine tuberculosis eradication work will be held at Chicago October 6 to 8, inclusive. This meeting is designed to gather and disseminate the latest scientific and practical knowledge of animal TB and its ravages.

Malady Among Western Horses.

An outbreak of what is commonly called the "Kansas horse disease" has taken place in western Kansas and eastern Colorado within recent weeks, causing the loss of several hundred horses. With the reappearance of this malady, which veterinarians designate as forage poisoning, or cerebrospinal meningitis, representatives of the Bureau of Animal Industry and the Colorado Agricultural College began a vigorous campaign, which it is believed has effectively checked the epidemic. The fact that in the outbreak of 1912 Kansas lost some 20,000 horses indicates the serious possibilities of such an occurrence and the value of speedy protective measures such as the Federal and State experts have taken.

The cause of this disease is not definitely known, but it is believed to be due to eating some form of fungous growth. In response to questions in behalf of farmers and others whose animals have been stricken, the Bureau of Animal Industry has sent out a number of telegrams informing owners that work horses in the afflicted areas should not be permitted to graze, and as far as possible they should receive only hay and grain rations from last year's crops. Horses in pastures should be removed to barns or dry-feed lots, and should likewise be fed only hay and grain rations from last year's crop.

Special Forecasts for Airmen.

All interests, civilian and military, in any way connected with aviation are expected to profit by a new service, consisting of "flying forecasts," which has been instituted by the Weather Bureau of the U. S. Department of Agriculture. By reason of this special information, which will be issued twice daily to the office of the Director of Military Aeronautics, hazard involved in long flights is greatly lessened. In fact, military aviators are no longer permitted to undertake extended air trips until they have secured the latest forecasts, to make sure that an encounter with serious storms is improbable.

These special weather reports are furnished also to the Naval Communication Service for the benefit of naval airmen. The reports given the military authorities include forecasts for each of 13 zones into which continental United States has been divided by the Weather Bureau. They are also supplied free to any newspaper or private enterprise on condition that the recipient pay telegraph charges.

The need of the service was demonstrated a few weeks ago when a fleet of military airmen undertook an extended flight without securing a forecast of the weather and, in consequence, ran into a storm that caused considerable damage. This experience was responsible in part, at least, for the suggestion that the Weather Bureau supply weather forecasts in the special manner indicated.

This latest activity of the Weather Bureau is in effect a nation-wide extension of the forecast service instituted more than a year ago, when aircraft began carrying mail between large cities.

Battling Scrub Bulls.

Wisconsin has been waging a purebred bull campaign in the hope of banishing scrub and mongrel sires from within its boundaries. Of course, in the Badger State, which is one of the leading milk, cream, butter, and cheese States in the Union, there are thousands upon thousands of dairy cows and hundreds of dairy sires, so that the matter of purebred bulls is important.

Waukesha County—one of the leading dairy communities of the United States and noted particularly for its Guernseys—after a stiff fight has reduced its mongrel bull population to 42 per cent of scrubs and grades, as compared with 58 per cent of purebreds. Walworth County now has 53 per cent purebred and 47 per cent grade and scrub bulls, while Sawyer County has 52 per cent purebred, 37 per cent grade, and 11 per cent scrub bulls. The Price County bulls are 45 per cent purebred and 55 per cent grades and

scrubs, while Sheboygan County has 37 per cent purebreds, 50 per cent grades, and 13 per cent scrubs. Wood County, with 38 per cent purebreds and 62 per cent grades, is just a little better off for good bulls than Barron County, which owns 36 per cent purebreds, 45 per cent grade, and 19 per cent scrub bulls. In La Crosse County the bull census shows 30 per cent purebred, 54 per cent grade, and 16 per cent scrub sires.

Twenty-one Wisconsin counties have completed censuses of their bulls and have instituted drives to banish those of inferior blood lines and undesirable type.

Pig Clubs Successful.

In Illinois during the past year, 109 pig clubs were organized with an enrollment of 934; of this number 480 finished the work and kept complete records. Members reporting managed 562 pigs weighing in all 92,841 pounds. The value of these animals was $24,684.56; cost of production, $13,680.34; profit, $11,004.22.

Records Important in Club Work.

Boys and girls in club work learn to keep accurate accounts from day to day of their projects. In animal feeding, for example, their records contain such items as cost of feed, cost of hired labor, if any, value of club member's time or labor, receipts from sales or value at end of feeding period, and profit. Aside from the value of the work to the boy or girl in the project itself, there is a training and educational value in complete and accurate record keeping and a benefit from actual ownership, which will be helpful to these future farmers when they assume larger responsibilities.

Farm Terracing in North.

The owner of a large farm in Pennsylvania, on which one of the first attempts at terracing in the North Atlantic States was undertaken last spring, is enthusiastic about the benefits of this work. He has asked that the drainage division of the Bureau of Public Roads, U. S. Department of Agriculture, which supervised the project, aid in extending the terracing this fall.

This sort of rural engineering is new in the region, and the low ridges at various levels on the sloping fields of this farm have occasioned the liveliest interest in the whole district. Terracing of various types has been practiced in parts of the South for a number of years, but in many sections of the North its great advantages are little understood. Consequently, the Bureau is particularly interested in this demonstration of the permanent value of terracing on this Pennsylvania farm.

The Bureau of Public Roads points out that the washing away of earth by water costs the farmers of the United States approximately one million dollars every year. Soil losses from this cause occur in every State of the Union and in almost every country of every State. Terracing is the most effective method of prevention.

There are two types of terraces—the bench terrace and the ridge terrace. A field of bench terraces resembles a series of benches or a flight of steps. Ridge terraces, as the name implies, are simply ridges of earth thrown up across the slopes or hillsides. Ridge terraces are divided into two classes with respect to width and base, narrow base and the broad base. A broad base is the more recent type of the two, and as yet has been used in only a few localities. However, it is rapidly coming into general use and is taking the place of the narrow base because of its superiority for most, if not all, conditions. This is the type on the Pennsylvania farm. Its chief advantage lies in the fact that it can be readily crossed by large farm machinery, and therefore it does not interfere with the usual farm operations. The broad embankment of earth gives the terrace strength to withstand the pressure of water and prevents breaks due to seepage.

Forest-Fire Peril Ends.

Reports and estimates from representatives of the Forest Service, U. S. Department of Argiculture, indicate that the period of the greatest forest fire peril that has ever confronted the Forest Service has been brought to an end by heavy rains and snows in Montana and northern Idaho. Until this sorely needed assistance from nature arrived the wooded areas of the district were so dry that fires gained terrific headway with astonishing rapidity.

A surprising number of electric storms occurred over these tinder-dry regions, unaccompanied by sufficient rain to check the flames which were started by lightning. More than half of the fires in the regions, reports show, were begun by such electrical discharges.

To meet this peril in Montana and northern Idaho, a maximum of 4,500 extra men were employed in addition to the regular forces in the field. By reason of what was probably better organization than has ever been effected heretofore, the fire fighters were able to keep the flames very largely away from the more valuable timber. While no definite figures are yet available, it is estimated that the burned area totals approximately one million acres. Much of this, however, was land which had been burned over at some previous time. What is known as a blow-up—a wind of great velocity—occurred during the season, and added greatly to the labor of the fire fighters. For a time it was feared that the destruction wrought might be as great as that in 1910.

This season seven men lost their lives fighting the flames. Two died of spotted fever, one from overexertion, and four were killed by falling trees. In 1910 more than 70 men were killed and many towns were wiped out. One crew of men this year was seriously imperiled and for many hours it was feared they had been cut off by the advancing flames. Another crew was forced to remain in a cold stream for 18 hours to avoid being burned to death. Similar measures were taken to save a pack train.

When to Cut Corn for Silage That Makes More Meat and Milk

The feeding worth and palatability of good silage depends on the quality of the corn and the period of maturity at which it is cut. Where the corn is cut when it is immature, not well glazed and dented, and still in its juvenile stage, it makes washy, low quality, acid-forming silage which is likely to sour. On the other hand, corn harvested when it is well dented and at the proper degree of ripeness for best use as silage, gives a winter feed which is one of the best producers of milk and meat. Corn should be allowed to pass well through the milk stage and become thoroughly dented before being siloed. Investigations of the United States Department of Agriculture have demonstrated that it is much preferable, for silage of the best quality, to have the corn a little overripe rather than underripe.

In some sections farmers, and particularly dairymen, are accustomed to ensile combination crops, using mixtures of soy beans and corn, cowpeas and corn, sorghum and corn, or a combination of these three for canning purposes. As a general proposition, where other branches of animal husbandry in addition to dairying, are taken into consideration, corn or some other coarse forage is most desirable for ensilage purposes. Acre yield is the end sought, the chief objection to the valuable protein forages such as cowpeas, soy beans and the like being that they are low yielders better adapted for hay than for silage. Dairy farmers who require an abundance of succulent silage of a rather balanced composition highly prize the leguminous crops mentioned as supplements to corn and usually realize an adequate return from the sale of their milk to allow them to produce these crops at a profit.

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MUST ADJUST MEAT INDUSTRY TO BRING ABOUT FAIR PRICES

Packers Told That Production Should Not Be Discouraged

Chief of Bureau of Animal Industry Says That Ample Output is Most Important Factor for Lower Costs

"Our live-stock industry must be so adjusted that the people of this country may obtain wholesome meat at fair prices, and this must be done without discouraging production."

That statement was made before the National Association of Meat Packers in session at Atlantic City, by Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the United States Department of Agriculture. Ample production, he continued, is the most important factor leading to prices that the consumer is willing to pay and pay cheerfully. The public must have confidence in the method of production and distribution, and consumers are entitled to full information, he said, regarding the growing and marketing of live stock and the distribution of the meat and its products.

Disease Work Important

Control and eradication of animal diseases, Dr. Mohler asserted, are vitally important factors in ample production and of liberal consumption and proper nutrition as well. If the live-stock men of the country, he said, on top of their other problems, had to contend with pleuro-pneumonia, foot-and-mouth disease, surra, rinderpest, and other animal scourges that the United States Department of Agriculture has succeeded in keeping out of this country or eliminating as soon as they appeared, production certainly would fall and consumption would be curtailed by reason of high prices necessary to cover the risk of production. Fortunately, he continued, the list of diseases mentioned may be considered a problem already solved. They do not exist in this country, and the Bureau of Animal Industry is on the alert to keep them out.

"As to most other animal diseases," he continued, "I am now able to say from a scientific point of view that victory against them is in sight, and in certain cases eradication is practically complete. There is still need for abundant field and laboratory work, thorough supervision, and energetic inspection, but we are confident that it is merely a matter of time before every serious disease must yield to the weapons of science."

What Has Been Done

Dr. Mohler backed up this statement by citing what has been accomplished with a number of serious diseases. As late as 1906 cattle scabies was prevalent in about 1,300,000 square miles of the United States. Now the country is practically free from this disease. In 1906 about 1,800,000 square miles were infested with the sheep scab disease. Now only about 200,000 square miles remain infested, and at the recent rate of progress

(*Continued on page 11.*)

FARMERS' REPRESENTATION AT INDUSTRIAL CONFERENCE

In response to communications regarding the agricultural representation at the industrial organization conference on October 6, Secretary Houston sent the following reply:

"I am thoroughly in sympathy with the notion that farmers should be generously represented in any conferences which are to consider matters affecting the agriculture of the Nation. I have very definitely made such a suggestion to the President and with the view he has concurred. You are aware that he has asked each of the three outstanding national farmers' organizations to name a representative. In addition, he has placed on the committee representing the public two farmers, Mr. Sweet of Colorado and Mr. Bradfute of Ohio, and an editor of a farm paper, Mr. Meredith of Iowa. This makes six agricultural representatives at the meeting.

"The President would have had a larger representation of farmers if it were not for the fact that the question chiefly to be discussed is that of industrial organization. He expects that this conference will widen into others where special attention will be given to other aspects of our industrial life, including agriculture specifically, and I am confident that at such conferences he will seek a more generous representation of farmers. In view of the fact that the first congress is to discuss industrial organization, he believes that the six representatives of agriculture will not be inequitable."

CARE IN POTATO HARVESTING AND STORAGE IS ADVOCATED

Below-Normal Crop Increases Reason for Careful Measures

Rough Handling Should Be Reduced and Thought Should Be Given to Places Where Tubers Are Kept

Since the potato crop will probably be below normal, more than ordinary attention to the problems of harvesting and caring for the crop is urged by the United States Department of Agriculture.

While most of the commercial crop will be harvested with the modern elevator diggers which lift the tubers from the ground and separate them from the soil and vines, on many small fields a plow-like digger is used. It is provided with a device for rocking or agitating the finger-like attachment in the rear which separates the tubers from the soil. The turning plow also is used in small areas for lifting the tubers out of the ground. Because potatoes are grown on light soils in New England, only two horses, ordinarily, are used, whereas on the heavier soils of the Middle West three or four horses to a mechanical digger are required.

Within the past year elevator diggers have been placed on the market, a small gasoline engine being used to operate the carrier and vine cleaning device, while a team of horses hauls the machine. This facility reduces the draft and makes it possible to dig a larger acreage a day. However, it adds greatly to the cost of the machine, and it is not anticipated by specialists of the United States Department of Agriculture that it will be used generally other than by large growers

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in regions where two horses commonly are used.

Reducing Rough Handling

In Maine the tubers are gathered in wooden splint baskets, from which they are dumped into barrels and hauled to storage houses or shipping points. The empty barrels in either case are returned to the field. In western New York and in Michigan and Wisconsin it is the general custom to gather the tubers in slatted crates in which they are hauled directly to the shipping point or to the storage houses. This method is considered much more satisfactory than that practiced in Maine because it reduces the chances of rough handling, especially when the digger empties the first basket which goes into the barrel. The usual custom is to dump the potatoes into the barrel without making any pretense of tipping it in order to protect them from the force of the fall. The injurious effect of such rough handling, especially if the tubers are somewhat immature, can be readily appreciated. Much of this injury could be avoided by a little care, when emptying the first two or three baskets, in tipping the barrel, or lowering the basket into the barrel.

In western Minnesota and points west of that territory the tubers are gathered in wire baskets, from which they are thrown on the grader, screened, and put in two-bushel sacks, or from two to three baskets are emptied into each sack, which is then hauled to the storage house without tying, the grading in the latter case being done in the storage house as the crop is marketed. In the East little grading is done in the field other than leaving the small, scabby, diseased, sun-burned or badly cut tubers on the ground to be gathered up later for starch making or for stock feeding. Little, if any, care is exercised in this respect when the crop is sold directly from the field.

In the West, where field sizing is most commonly practiced, it is the rule to have the potato sizer mounted on metal or wooden runners to which one or two horses are attached. The grader follows the diggers as they move back and forth across the field. Usually one operator can size and sack the potatoes gathered by three diggers. Where the crop is handled in this manner all the sound tubers are picked up at one operation. This device screens and separates the crop into two sizes, and the operator who manipulates it is supposed to remove all of the sunburned, diseased, and badly cut or bruised tubers as they pass over the screen, such tubers going into the culls.

In regions where late potatoes are produced on a commercial scale the problem of storage is an important one, as it is physically impossible as well as economically undesirable to attempt to market the entire crop in the autumn. The only way in which the potatoes can be handled successfully so as to insure a uniform supply throughout the winter is to provide sufficient storage on the farm or at the shipping station for 65 to 75 per cent of the total crop. Every commercial grower should make such provision as may be necessary to care for at least 75 per cent of his crop, and often he would find it convenient to be able to store all of his crop.

Various types of storage places may be employed, such as pits, cheaply or substantially constructed dugouts or cellars with straw and earth covered roofs such as may be found in the arid or semiarid regions of the West, or a similar type with water-tight roof, which is in use in the Middle West and some portions of the East, or the more expensive type of house such as is found in Maine.

The successful storage of potatoes involves their protection from extremes of cold and heat and their maintenance at a temperature of from 35 to 40 degrees F. Sufficient ventilation must be provided to remove foul air and excess moisture. The storage house must be so constructed as to exclude light, as the table quality of potatoes quickly deteriorates in the light. The tubers should be dry and reasonably free from dirt when put into storage, as an excess of moisture or soil increases the amount of heat generated in a newly stored supply of potatoes. The soil tends to close up the spaces between the tubers, thus cutting off air circulation and helping to retain heat that would otherwise escape. All diseased, badly cut, or bruised tubers should be removed from the crop before putting it into storage. It is not advisable to permit the stored potatoes in any bin to exceed a depth of 5 or 6 feet, and the floor dimensions of a single bin should not be greater than 12 by 12 feet unless it is provided with a series of ventilating shafts for the escape of moisture and heat. Ventilated division walls and floors are also desirable.

Loss from Deep Storage

Some commercial growers and shippers of potatoes store in bins so deep that the tubers form a layer 10 to 15 feet thick. This is almost certain to entail a much heavier shrinkage loss than when stored at a depth of not more than 6 feet. The heavier shrinkage is the result of the greater amount of heat generated by a large pile of potatoes, which results in a higher moisture loss as well as a heavier loss from decay, as heat and moisture both help to develop organisms causing tuber rots. The losses under these conditions may reach 25 per cent, and where all diseased tubers have not been removed at the time of storing the loss may exceed that figure.

Potatoes stored throughout the winter season under conditions meeting the requirements suggested above should not sustain an actual loss in storage of more than 5 per cent, and under exceptionally good conditions it may be as low as 3 or 4 per cent. Assuming that 5 per cent represents the average loss under good storage conditions and that 20 per cent would be a fair average allowance under poor conditions, the actual monetary loss sustained by the grower or dealer on 300,000 pounds of potatoes would in the one case be 15,000 pounds and in the other 60,000 pounds, or, expressed in dollars on a basis of $1 a hundredweight, a loss of $150 under good and of $600 under poor storage conditions. Besides this, there is an additional loss in storing potatoes to a depth of 10 to 15 feet which is not usually taken into consideration, and that is the mechanical injury through the cracking and bruising of the tubers at the bottom of the pile due to the great weight of the potatoes on top.

Additional information about the potato crop is contained in Farmers' Bulletin 1064 recently published by the United States Department of Agriculture.

OPPORTUNITIES FOR CHEMISTS

In connection with its campaign of prevention of fires and dust explosions in grain mills and elevators, the United States Grain Corporation desires to obtain the services of one or more chemists to conduct research investigations. While it is desirable that the men have a doctor of philosophy degree in physical or organic chemistry, this is not required if they have had satisfactory experience in independent research. The Grain Corporation wants results and wants the men who can produce them, but since most of the problems require a knowledge of physical chemistry, it is essential that one have training in this branch of the subject. Salaries from $1,800 to $2,400 per annum will be paid, depending upon ability and experience. Applications for these positions should be forwarded promptly to Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., with a detailed statement of training and experience, together with any special qualifications which the applicant may have for this work.

Faulty butchering is responsible for not a little loss of good meat, which is wasted by being left on the hides of carcasses that have been skinned.

STOMACH WORM NO OBSTACLE TO SUCCESSFUL SHEEP RAISING

Department Tells How to Meet Problem of Growers

Good Shepherd Has Lambs Come Early, Drenches Flock for Prevention, and Rotates His Pastures or Pasture Crops

"The stomach worm need not be a serious trouble for a good shepherd who has his lambs come early, feeds well, drenches the flock as a measure of prevention and provides a rotation of pastures or pasture crops."

That is the judgment of the United States Department of Agriculture on one of the most serious problems for owners of farm sheep. Definite information concerning the essential things is embodied in Circular No. 47, "Stomach Worms in Sheep—Prevention and Treatment," prepared in the Bureau of Animal Industry. The whole subject is summarized in five questions and answers to them. Condensed, it is this:

How can one tell when sheep have stomach worms?

Dullness and lack of thrift are among the first indications. Scouring is often noticeable. These conditions might result from other causes, but when due to stomach worms, are accompanied by a pale, bloodless appearance of the skin and the mucous membranes of eyes and mouth. Sometimes there is a watery swelling under the jaws.

Injuries Described

How do the worms injure sheep?

These very small worms live in the alimentary tract, principally in the "fourth stomach," and injure sheep by consuming blood and by secreting a poisonous fluid which destroys red blood corpuscles. The injury is often fatal to lambs. Adult sheep are better able to withstand it.

How should infested sheep or lambs be treated?

Make a drench by dissolving one-fourth pound of powdered bluestone in a pint of boiling water and add sufficient cold water to make a total of 3 gallons of solution. The dose for an adult sheep is 3½ fluid ounces, for lambs under a year old, 1¾ fluid ounces of this solution. It is better to use this early before serious trouble develops than to wait until the lambs begin to die.

Care, however, is necessary in drenching and improper dosing may cause serious damage. While the lambs are with the ewes change pasture every two weeks if possible and do not return the flock to the old pastures until the lambs are sold.

Eggs Laid in Stomach

How do sheep become infested by stomach worms?

The stomach worm lays its eggs in the stomach of the sheep. They are passed out with the feces and hatch on the ground. In the last larval or infectious stage, the young worms climb up on grass blades and are taken into the stomach of the sheep and lambs with their food. They will live for a long time in the pasture. For all practical purposes it may be considered that a pasture will not remain infested longer than a year, in the absence of sheep or other ruminants. Another way of freeing a pasture of its infection is to plow it up. It is not of much consequence whether every larval stomach worm in the pasture is dead or not. The object is to keep the number so reduced that they are not likely to prove injurious to sheep.

What methods can be employed to prevent loss from stomach worms?

Prevention when it is possible to take the necessary precautions is more satisfactory and economical than treatment. The most effective measures of prevention are:

Have the lambs dropped early, and feed to develop them as much as possible before they go on pasture. Rotate pastures. Where feasible, plow up infested land and put it in forage crops that will make good grazing for sheep. Where sufficient changes of pasture can not be provided, drench with bluestone as a preventive and curative measure. Many successful shepherds dose all the ewes before turning them on pastures with the lambs, and after weaning time, dose all the lambs that are to be kept. This is done as a means of keeping infection of the lambs down to a minimum.

May Feel Foreign Competition in Dairy Products in Two Years

"European needs for dairy products may be largely supplied from prewar sources within two years' time, and the American dairy industry may again feel foreign competition on home markets." This is the conclusion of Roy C. Potts, specialist in marketing dairy products, Bureau of Markets, United States Department of Agriculture, speaking before a recent meeting of food officials in New York City.

In explaining the work of the Bureau of Markets in gathering and distributing accurate market information on dairy products, Mr. Potts pointed out the stabilizing effect of such information on prices, and stated that fluctuating prices at wholesale make for wider margins between producer and consumer, while stabilization permits greater economy in distribution.

Recent monthly reports on milk prices in 200 cities have called attention to the wide difference in distribution costs prevailing in different sections of the country. While economies in distribution are possible in some communities, the speaker pointed out that a saving of 10 per cent in the cost of distribution would make only a very slight saving to the individual consumer. A much greater loss to the public, he said, lies in paying top market prices for inferior qualities of dairy products. He advocated standardization of methods of production and distribution, with special attention to more uniform quality of product as one of the great needs of the dairy industry.

MEN WANTED FOR GRAIN-DUST WORK

The United States Grain Corporation desires to secure men with milling and grain experience to assist in the grain-dust explosion and fire-prevention campaign in the mills and elevators throughout the country, which is being conducted in cooperation with the United States Department of Agriculture. The appointpointments will be made at salaries ranging from $1,620 to $2,400, dependent on the training and experience of the applicant. Men with training or experience in one of the following lines will be eligible for appointment to this work:

(1) Milling, mechanical, electrical, agricultural or chemical engineering education, training or experience.

(2) Practical experience in grain mills and elevators in the handling, manufacture, and production of flour, feeds, and grain products.

(3) Experience in the manufacture, design, or construction of grain cleaning and handling equipment for mills and elevators.

Applications for this work should be forwarded promptly to Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, Washington, D. C., with a detailed statement of experience and training, together with any special qualifications which the applicant may have for this work. The appointments will be made as soon as men with proper training and qualifications can be secured.

As a result of landscape work on public-school grounds being done in certain communities in Ohio, a number of farmers have planted shrubbery about their homes to improve their appearance.

GRAPE JUICE A GOOD USE FOR MUCH WASTED FRUIT

How to Make it is Told in New Department Bulletin

Sanitary Handling is a Requisite; Blending of Varieties Will Make Delicious Product; Sugar Not Always Needed

Each year many grapes which might readily be conserved in the home as unfermented juice are wasted. Their use for making unfermented grape juice, the popular fruit-juice beverage, is recommended by specialists of the United States Department of Agriculture. The processes involved are comparatively simple and inexpensive, requiring no special equipment, while the finished product is easily preserved. Complete information in this regard is contained in a new Farmers' Bulletin, "Unfermented Grape Juice; How to Make It."

The cold-press method of making grape juice is most commonly followed. The grapes must be clean and sound, and should, if possible, be gathered in the cool hours of the morning in clean baskets.

Grapes should be crushed directly after picking. In home work the grapes may be crushed by hand or with a potato masher after being placed in a deep vessel or cloth bag, although it is much better to use a small and inexpensive homemade crusher.

Cider Mill for Crushing

If a cider mill is available it may be used for both crushing and pressing.

When grapes are crushed a considerable quantity of juice is released as a result of separating the pulps and skins, and this liquid, which is known as the free-run juice, should be drained sufficiently without exerting any pressure. This juice is of the best quality, and may be used for making a product of extra fine quality, or it may be mixed with pressed juices obtained by supplying pressure to the mass of crushed grapes. In any case pressing should be carried out immediately after the grapes are crushed, as fermentation begins promptly thereafter. When only small quantities of grapes are handled they may be placed in a drain bag of strong muslin, double cheesecloth, or burlap, suspended over a vessel, and pressed by hand. When large quantities of fruit are being handled a thoroughly clean commercial grape crusher and press should be used.

Medley Grape Juice is Best

The necessity for sweetening, acidifying, or blending grape juices to secure desirable character and flavor may usually be avoided in the home preparation of grape juice if the operator has access to a number of varieties whose different flavors will blend to produce a sprightly product. In instances where this method can not be practiced, the addition of 1 ounce of citric acid to 5 gallons of particularly sweet grape juice will give a satisfactory taste, although ordinarily the northeastern grapes do not require acidifying as do the western varieties. Where it is necessary to sweeten the grape juice a level teaspoonful of sugar to a pint of juice usually is adequate, although it is advisable to add the sugar gradually and to depend upon the palate of the operator rather than upon an arbitrary rule. Grape juice may be acidified, sweetened, or blended at almost any time, although it is preferable that the work be done as soon as possible after the juices are extracted in order that clarification may not be interrupted.

Clarification should start as soon as the pressing is finished. The juice should be allowed to stand undisturbed, in deep wooden or enamel vessels, in order that the pulp may settle for four to six hours or overnight. The juice should then be filtered or strained through a clean double cheese cloth in such a manner as not to disturb the sediment deposited while standing. This transfer of the juice may be accomplished by siphoning or by careful dipping or pouring. After passing through the cheese cloth the solid particles still in suspension may be removed by pouring the juice through a clean flannel jelly bag. The juice filters through the flannel much easier if it has been previously strained through the double cheese cloth. If necessary this operation should be repeated a second or third time until the material is fairly clear.

Pasteurize Juice After Filtering

As rapidly as the juice is filtered it should be placed in sterilized containers in which it is to be pasteurized or stored.

If half-gallon jars are used each should be filled until the liquid stands at the middle of the neck. The top should then be placed loosely upon the jar to prevent the entrance of dust, yeast, or mold spores from the air. As soon as the juice has been placed in the jar pasteurization must begin. This process consists of the destruction of the organisms which produce fermentation and the control of yeasts and molds in the liquid. Ordinarily a temperature of 165° F. maintained for an hour will effectually pasteurize grape juice, while a temperature of 180° F. maintained four minutes, will be equally effective. As it is difficult under home conditions to maintain a steady temperature for a considerable period the method of pasteurization recommended under such instances is to heat the juice to a definite temperature and immediately to remove it from the source of heat and to seal the container to prevent reinfection from the air. This process can be successfully carried out by following the directions contained in the department bulletin, which also advises fully concerning the construction of a simple homemade pasteurizer.

After pasteurizing and sealing, the jars of grape juice should be placed in a closet, out of the way of air currents, where they may cool slowly and be allowed to stand undisturbed. They should be examined daily for the first few days, then less frequently, in order to detect any jars which might begin to mold or ferment as a result of imperfect pasteurization, defective rubber rings, defective jars, or faulty sealing. If fermentation or mold growth develops, the jar should be immediately repasteurized as before, after which it should be sealed with a new rubber. After the jars have been properly clarified the grape juice should be permanently bottled and then repasteurized in bottles previous to permanent storage.

DETECTING OVERGRAZED RANGE

The old saying about a small amount of prevention being worth a great deal of cure applies even to the management of grazing lands. It is much better, and even easier, if care and forethought are exercised, to prevent lands from being overgrazed than to bring them back into good condition after overgrazing has been allowed. How to recognize overgrazing in the beginning and how to prevent it are brought out in a recent publication of the Department of Agriculture Bulletin 791, "Plant Succession in Relation to Range Management," issued by the Forest Service.

The landscape work is being carried on by the Indiana extension service in cooperation with schools and individuals. Plans are furnished and plantings are supervised where possible. Both the county agent and the State specialist follow up the work.

The Parcel Post Service offers possibilities well worth investigation by persons who have small surpluses of various farm products. The widespread knowledge of the need for conserving the food supply and the apparent willingness of the American people to cooperate to this end should become peculiarly useful in disposing of small quantities of specialties or products of unusual quality.

How to Tell Cattle's Age by Their Teeth; Each Year Leaves Its Mark on Grinders

The age of cattle can be approximated closely by the appearance, development, and subsequent wear of their second incisor teeth, according to Farmers' Bulletin 1066 just issued by the United States Department of Agriculture.

Cattle have eight incisor teeth, all in the lower jaw. In the calf at birth two

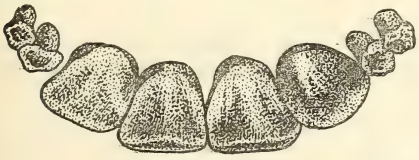
Internal face of incisors of the calf.

or more of the temporary or first incisor teeth are present. With the first month the entire eight incisors have appeared. Each of six stages in the development of the teeth is shown in the bulletin by

Internal face of incisors at 2 years.

illustrations which will be very helpful to the person desirous of becoming proficient in judging the age of cattle.

As the animal approaches 2 years of age the center pair of temporary incisor teeth or pinchers are replaced by the permanent pinchers which at 2 years attain full development.



Internal face of incisors at 3 years.

At from 2½ to 3 years the permanent first intermediates are cut and are usually fully developed at 3 years.

Internal face of incisors at 4 years.

At 3½ years the second intermediates or laterals are cut. They are on a level with the first intermediates and begin to wear at 4 years.

Internal face of incisors at 5 years.

At 4½ to 5 years the corner teeth are replaced, the animal at 5 years having the full complement of incisors with the corners fully developed.

At 5 to 6 years there is a leveling of the permanent pinchers, the pinchers usually being leveled at 6 and both pairs of intermediates partially leveled and the corner incisors showing wear.

From 7 to 8 the pinchers are noticeably worn; from 8 to 9 the middle pairs, and by 10 years the corner teeth.

After 6 years the arch gradually loses

Internal face of incisors at 12 years.

its rounded contour and becomes nearly straight by the 12th year. In the meantime the teeth have become triangular in shape, distinctly separated, and show the progressive wearing to stubs.

PROTECT GRAIN FROM FIRES

A considerable amount of grain in the field is lost each year by fires which reach the stacks through dry stubble or through lightning. Fire protection demands that a large number of stacks should not be placed in a small space and that each group of stocks be safeguarded by means of a firebreak. Special precautions should be given to preventing thrashing engines setting fire to grain.

HORSES' DECLINE IN CITIES SHOWN IN NEW YORK SURVEY

As a source of power on the farm and to some extent for travel by farmers, the preservation of the horse on farms without much if any diminution of number seems probable from what has occurred and not occurred to the present time in the use of automobiles, auto trucks, and tractors by farmers. But it is asserted that in the city the horse will soon become as extinct as the dodo. The advance of the process of extermination, if that is the right word, has been investigated in the city of New York by the field agent for that State of the Bureau of Crop Estimates, United States Department of Agriculture.

The census enumerators of 1910 found 128,224 horses in that city, including nearly 3,000 horses on farms. By the stable enumeration of the sanitary bureau of the board of health, 108,036 horses were found in 1917 and 75,740 horses in 1919. Assuming that the enumerations of the two agencies are fairly comparable, it appears that 16 per cent of the number of horses of 1910 had been lost by 1917 and 41 per cent by 1919. Over 25 per cent, or one-quarter, were lost in the last two years and only 16 per cent in the preceding seven years. These are averages for Greater New York, and the progress of the movement has varied in the several boroughs of the city.

In the older and more congested business boroughs, Manhattan and Kings (old New York and Brooklyn), about 38 per cent of the horses have been displaced, while in Queens and Richmond (Staten Island) Boroughs the displacement is 60 and 54 per cent, respectively, and in these two boroughs the movement was more intensive from 1910 to 1917 and less intensive in the last two years than in old New York and Brooklyn. To the present time the horse has survived in crowded streets and in dense business sections in greater degree than elsewhere. Of the total horses of the entire city, 60 per cent are in Manhattan and Bronx Boroughs and 31 per cent in Kings Borough, or 92 per cent in the three boroughs, and nearly as large a fraction if the Bronx is excluded.

Buy War Savings Stamps.

Handy Helps in Harvesting Soy Beans Increase Crop's Food and Forage Value

With the widely increased popularity of the soy bean the harvest of the crop has gained markedly in importance in practically every section of the country. According to specialists of the United States Department of Agriculture the fact that practical and satisfactory bean harvesters are now on the market at comparatively reasonable prices and are efficient for harvesting the crop either when grown under level or ridged-row methods of cultivation, greatly increases the value of this crop not only as a forage for live stock but also for human food purposes.

The most common type of special bean harvester is a two-wheeled, box-like machine which is drawn by two horses. As the machine passes over the row of plants four sets of rapidly revolving arms shatter the beans from the pods into the body of the harvester. While the machine moves along the row the seed is gradually raked to the rear of the box by one of the operators. Under favorable conditions two men with a team can harvest—and harvesting means cutting and threshing the crop in one operation—1 acre of beans in two hours by this method where the yield is about 20 bushels to the acre. Although there is some loss of beans it is more than compensated by the saving of time and labor as compared with harvesting in other ways.

If the plants are not too coarse the self binder can also be used to good advantage in the harvest of the taller growing varieties of beans. This method is gaining favor rapidly in many sections as the average grower owns a grain binder while, as a rule, unless he intends to produce soy beans as a regular rotation crop it will not pay him individually to purchase a special bean harvester. But where several farmers in the neighborhood can cooperatively buy this equipment such procedure is commendable. For the best results, where the grain binder is used, the plants should be cut while some of the leaves are still retained as then the harvesting is easier and no loss results from shattering.

Mowing Machine Used

The mowing machine is also used to a considerable extent in saving the soybean crop. Generally where this implement is used it is advisable to have a side-delivery attachment, in order that the horses will not trample on the swath of cut beans. However, where such an appliance is not available, a man can follow the machine with a pitchfork and remove the plants at every round out of the way of the team, for if trampled upon many of the seeds will be shelled out and wasted. The self-rake reaper, which really is a mowing machine provided with a bunching attachment, gives satisfactory results, as it harvests the crop without exposing it to injury or damage.

When cut with a mowing machine or with a self-rake reaper, the beans may be raked in small piles or placed in small shocks. These piles or shocks should be left for four or five days in good drying weather or until the grain is found to be fairly dry in the pods. Wet weather does not injure the crop seriously, provided the plants are not allowed to rest on the ground for any length of time. If rain occurs, the piles or shocks should be watched carefully and turned frequently.

Where a binder is used the bound bundles should be shocked eight or ten to a shock and allowed to remain until thorouhgly dry. Hay caps are not necessary when the piles or bundles are shocked properly. They may remain in the field until thrashing time or if thoroughly dry they may be housed and thrashed later. The cured plants are ordinarily gathered from the field by hand but the web loader commonly used for haying will do the work more rapidly and with less loss of seed than the hand methods.

Should Adjust Separator

The ordinary grain separator can be adjusted to thrash any beans successfully, but as equipped for small grains a large percentage of cracked beans will result. The chief cause of split beans is the high speed of the cylinder, which should be reduced at least one-half, although the speed of the fans and other parts of the separator should be maintained. This may be accomplished by doubling the size of both cylinder pulleys. In some cases a special set of thin concaves is used, while in other instances some of the concaves are removed. Good judgment on the part of the thrasherman will enable him to adjust the ordinary separator so that the beans may be thrashed with little splitting. Some manufacturers have special pea and bean hulling attachments for grain separators, which are said to be satisfactory work. These attachments may be added to the ordinary separator at small cost.

Special pea and bean separators of different sizes are now on the market. These types of machines do clean hulling and split practically none of the beans. Undoubtedly such separators are more satisfactory and economical where a considerable acreage of beans is grown. In sections where there is extensive seed production, investment in such a machine by the community would be profitable. Soy beans, if thoroughly dry, can easily be thrashed with a flail. In only a small acreage—an acre or so—this method is practicable and economical. In a few sections a corn shredder has been used to advantage. If properly cured and dried, the beans shell out readily with this machine.

Straw Makes Good Feed

The straw obtained from thrashing the soy bean for seed is a valuable feed for all kinds of stock. In many sections the straw is baled at the time of thrashing and sold in the immediate locality to liverymen, dairymen, and stock feeders.

As soy-bean seed spoils easily, if not properly handled, care should be exercised in curing and storing. After the beans are thrashed they should be watched carefully to avoid heating and molding. When thoroughly dry there is no such danger. The best plan, perhaps, is to spread the seeds out on a floor immediately after thrashing and shovel them over from time to time until they are thoroughly dry. After this they may be safely put into sacks or bins. The storeroom should be dry and have a free circulation of air. Soy-bean seed loses its viability rapidly, and it is not safe to hold seed for planting purposes more than two seasons. The seeds of the soy bean, unlike those of the cowpea, are rarely attacked by weevils or other grain insects.

HOW FARMERS' CAN PROTECT SEED WHEAT AGAINST SMUT

Smuts caused an estimated loss in 1918 of 25,000,000 bushels of wheat, 110,000,000 bushels of oats, and 6,000,000 bushels of barley in the United States. These diseases, which are among the most destructive that attack cereal crops, occur to a greater or less extent in all the grain-growing sections of the country.

There are two kinds of wheat smut, the loose smut and the covered smut; the latter is also called bunt or stinking smut.

Loose smut is found in practically every wheat field. It is most serious in the southern winter wheat section—southern Missouri, southern Illinois, southern Indiana, southern Ohio, southern Pennsylvania, Maryland, Virginia, Kentucky, and Tennessee. Throughout

this general area the annual losses range from 3 to 5 per cent. In many individual fields losses of 15 to 20 per cent are known. Outside of this general region the damage due to loose smut ranges from about 1 to 2 per cent.

Bunt, or stinking smut, also is found in the different wheat-growing areas of the country. Commonly, the damage done by this smut is from 1 to 5 per cent of the crop. Frequently, however, fields show losses which range from 20 to 40 per cent. Several fields have been observed in which the damage amounted to 50 or even 80 per cent.

How to Distinguish Smuts

Loose smut shows up most strikingly at the time when the wheat comes into head. The diseased plant is found to have the kernels and chaff replaced by a black, sooty mass of dustlike particles. These dust-like particles, the spores of the smut fungus, begin to blow from the diseased head soon after the latter emerges from the boot. These spores are carried by the wind to neighboring sound heads which are in bloom at the time; they lodge between the glumes or chaff, where they start growth immediately and penetrate the newly forming kernels. When these infected kernels are ripe they can not be distinguished from sound kernels, but they nevertheless contain the smut fungus. When an infected seed is planted and germinates the smut plant within it also begins to grow and develops within the growing plant; when the plant begins to form the head the developing tissues of the grain and chaff are destroyed and the smut fungus produces its spores.

Wheat heads infected with bunt are readily distinguished a short time before the wheat is ripe, although the trained observer can detect the presence of the disease several days before. The heads of smutted plants stand more erect on account of their lighter weight. The chaff is spread apart by the swelling of the enlarged false kernels or smut balls, which give the heads a dark color. These smut balls contain a greasy, ill-smelling mass of smut spores.

In thrashing operations these smut balls are knocked out and the head more or less broken apart and the smut spores scattered over the sound kernels; such grain has a darker color and a disagreeable odor due to the presence of the smut spores. Smutty wheat is docked more or less by the miller.

When smutty seed is sown in the soil the stinking smut spores germinate simultaneously with the wheat kernels, and the smut fungus penetrates the young wheat plant. It continues to grow within the tissues of the wheat plant and forms its spores in the place where the healthy kernels should be developed.

Control of Loose Smut

Loose smut is very difficult to control because the fungus is inside of the seed which is sown and hence can not be reached by ordinary chemicals without killing the wheat embryo. The disease, however, can be controlled by the so-called hot-water treatment. The method involves soaking the seed grain in cold water for 4 to 6 hours. It is then dipped in hot water at a temperature of 129 degrees Fahrenheit for 10 minutes; the seed should then be spread out to dry.

It is very important that the water be kept at the exact temperature and the seed immersed for just the correct period of time. If the water is allowed to get one or two degrees above the temperature indicated, or the time is prolonged beyond the 10 minutes, considerable injury to the grain will result. If the temperature is allowed to get below the point indicated, or the time shortened, the smut fungus will not be killed.

The hot-water treatment, on account of its difficulties, is not practicable on the average farm. One must have an accurate thermometer and facilities for keeping the temperature of the water constant. This can be done quite easily where steam is available.

Some progress is being made in developing central treating plants where adequate facilities are available for carrying out the treatment. The farmer brings his grain to this plant and an expert looks after its treatment. In those sections where loose smut is particularly destructive, it would seem advisable for the county agents to develop the central treating plant wherever possible.

The Control of Bunt

Bunt, or stinking smut, is readily controlled by the use of formaldehyde. A simple procedure is to place 1 pint or 1 pound of commercial formaldehyde in 40 gallons of water. The seed to be treated should be freed as much as possible from smut balls and other foreign matter, and then placed in a loose gunny sack, filled about two-thirds full. This sack of seed should then be dipped in the formaldehyde solution and kept there about 10 minutes. During this period the sack should be raised and lowered so as to stir up the grain and get it thoroughly in contact with the solution. After treatment the grain should be spread out to dry and then sown as soon as possible. One pint of formaldehyde solution, dissolved in 40 gallons of water, is sufficient to treat about 40 bushels of seed grain.

Another method of applying the solution is to spread the grain to be treated on a clean floor, and by means of a sprinkling can sprinkle the solution over the grain. The grain should be shoveled over in order to get the solution well in contact with the grain. The solution should be applied at the rate of about one gallon to one bushel of seed grain. The grain should be piled up and covered with sacks or canvas and left for two or three hours. It should then be spread out to dry and sown as soon as possible.

After treating seed grain, great care must be taken not to place it on a floor or in sacks which are contaminated with the bunt spores, or to sow it in a drill which is contaminated.

Bunt Problem of the Pacific Northwest

In the Pacific Northwest, bunt, or stinking smut, presents a very serious problem because of soil infestation in that region. During the thrashing of a smutted crop the smut spores are blown long distances over the fallowed land, as summer fallowing for wheat is a common practice. When the fall rains occur, along about seeding time, these spores in the soil germinate and infect the young wheat plants as they develop. On this account, seed treatment is not entirely effective; but, as a general rule, the copper sulphate treatment gives much better results than the formaldehyde.

The copper sulphate or bluestone treatment consists in dipping the seed in a solution of copper sulphate, 1 pound of copper sulphate being dissolved in 5 gallons of water. After immersion the seed is dried or sown immediately. This solution may cause considerable injury to the grain. This damage can be lessened greatly by dipping the seed, after removal from the copper sulphate solution, in a solution of 1 pound of quicklime to 10 gallons of water. The lime prevents the continued injurious action of the copper sulphate.

Landscape work is being carried on by the Extension Service in 18 counties in Iowa. The demonstrations are being given on farmsteads, public-school grounds, etc. The plans are furnished and the planting supervised by experts. County agents and State extension specialists follow up the work.

Indiana has made a big success of the boys' apple clubs, but through lack of funds has not been able to enlarge the work as much as desired, except through the State vocational schools. One orchard of 50 apple trees has been pruned and sprayed by a group of 14 boys under the direction of the local teacher of agriculture, assisted by the State extension specialist.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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LOWER TEMPERATURE BRINGS QUICK WHEAT GERMINATION

Frequently only a small percentage of freshly harvested winter wheat germinates readily under the conditions ordinarily used in making the germination tests, even though it would germinate well under these same conditions a few weeks later. In sections of the country where farmers depend upon wheat from the current crop for the fall sowing the poor germination secured with the fresh grain has made it difficult for seed analysts to give accurate information as to the quality of winter wheat offered for seed in time for this information to be of service.

In a recent investigation by the Seed Laboratory of the United States Department of Agriculture it has been found that this difficulty can be almost entirely overcome, even with wheat taken from standing plants and never allowed to dry out, by the use of a lower temperature than has been customary for making the germination tests. Thus, of 16 samples of freshly harvested wheat an average of 99 per cent began to germinate in five days at temperatures from 9° to 16° C. (48° to 61° F.), whereas in the same time an average of only 86 per cent germinated at 22° C. (72° F.), which is about the temperature at which germination tests of wheat are frequently made. In the case of one lot 98 per cent were germinating by the end of five days at 12° C. (54° F.) and only 16 per cent at 22° C. (72° F.). About 15° C. (59° F.) is recommended for use in making germination tests of all freshly harvested wheat. Of course at this temperature the rate of growth is slow after germination has begun. This method of treatment was equally successful with fresh samples of spring wheat and gave good results also with oats and barley.

CHEAP FEED AND CULLING ARE NEEDED FOR HEIFERS

The importance of providing cheap feed for growing heifers and practicing thorough culling is brought out by the results of feeding experiments recently completed by the Dairy Division, United States Department of Agriculture. In these experiments groups of calves were fed from birth to 1 year and 2 years of age and a record was kept of all feed consumed.

In one experiment, 11 heifer calves were raised to the age of 1 year The average amount of feed consumed by each calf was as follows: Hay, 571.8 pounds; grain, 885.5 pounds; silage, 3,693.1 pounds; milk, 110 pounds; skim milk, 2,414 pounds. Estimating the hay at $30 per ton, grain at $60, and silage at $8 a ton, milk at 4 cents, and skim milk at ¾ cent per pound, the cost of raising each heifer to one year of age was $72.42.

Five of the calves from the first experiment were then fed for one more year. During this second year each calf consumed on the average, 1,117.8 pounds of hay; 1,221.6 pounds of grain; 8,031 pounds of silage. Using the same figures for computing the cost of the feeds consumed during this second year, the total cost of raising a heifer from birth until two years of age was $157.96. These figures emphasize the necessity of providing for heifers cheap feed such as pasture and silage, and bring out the importance of carefully culling the heifers to avoid raising those which will prove to be inferior cows.

PACIFIC NORTHWEST WHEATS GRADE BETTER THAN IN 1918

Of the first thousand cars of new wheat received at Seattle and Tacoma this year, 35.8 per cent graded No. 1 as compared to 19.9 per cent of last year's receipts, the United States Department of Agriculture announces. The figures for last year represent receipts for the period July 15, 1918, to February 1, 1919.

Of the new crop White Club receipts 50.4 per cent graded No. 1 as compared to 26.63 per cent of the receipts of last year. Of the Hard Red Winter wheats, 56.8 per cent graded No. 1, while 34.3 per cent of the receipts of last year received a No. 1 grade. The figures for Common White wheats show 11.6 per cent No. 1 this year as compared to 8.5 per cent for last year's crop. These figures were obtained from reports made by licensed inspectors to the Bureau of Markets of the department.

An increase is also shown in the percentage of the new crop grading No. 2, 45.1 per cent falling into this grade as compared to 39.2 per cent for last year. A large increase is shown in Common White wheats, while slight decreases are shown in wheats of the other classes. Combining the first two grades, the figures show 80.9 per cent graded No. 2 or better this year as compared with 59.2 per cent of last year's receipts.

A general increase is noted in the average test weight per bushel of the various classes, and a marked decrease in the percentage of the crop carrying dockage. Smut dockage increased in the Common White and White Club wheats and decreased in the Red wheats.

HEAVY FIRING CONTINUED ON CATTLE-FEVER TICK

The heavy firing that has made notable the 1919 campaign against the cattle fever tick was continued with all guns during August, according to complete reports to the Bureau of Animal Industry, United States Department of Agriculture, from all the tick-infested States. Cattle dippings during August in all the States reached a total of 6,489,100, which was nearly 300,000 more than the dippings in August of 1918, although it did not reach the high mark set earlier this year.

The aggressive work during August gives added assurance that 1919 will be one of the biggest tick-eradication years since the Federal and State Governments began in 1906 to go actively into the fight against the load that Southern cattle raising has had to carry. It is expected that the releases of territory from Federal quarantine against the tick—to be effective December 1—will remove restrictions from a larger amount of territory than ever has been liberated in the year.

Following are the August figures by States:

States.	Cattle dippings.	Square miles being worked.	Dipping vats available.
Alabama	1,016,197	48,252	7,985
Arkansas	699,748	34,457	3,895
Florida	225,597	50,032	1,391
Georgia	452,110	33,661	2,577
Louisiana	1,245,767	45,187	4,588
Mississippi	245,572	34,134	5,600
North Carolina	7,355	10,108	349
Oklahoma	509,029	18,874	1,150
South Carolina	148,072	16,340	830
Texas (Fort Worth)	1,476,247	67,217	4,769
Texas (Houston)	553,466	37,303	1,277
Total	6,489,100	395,565	34,411

Better Leather and Less Waste Come From Clean Hides—How to Cure Them

Before cattle or horse hides are salted, they should be cleaned thoroughly. There is less waste on clean hides, and they make better leather. After the hide has been removed carefully from the animal, as much as possible of the dirt and blood should be cleaned off, while all pieces of flesh should be removed by scraping with the back of a butcher knife and by careful cutting. Do not wash the hide, however. All ragged edges of the hide should be trimmed away and the ears should be slit twice. The hide should then be allowed to lose its animal heat in a cool, dry, dark place, six hours usually being adequate, although overnight is permissible during cool weather.

Cure Out of Sunlight

For curing, select a cool, clean place, preferably a cellar or a barn floor free from drafts and out of the direct sunlight. A floor with a slight slope and a drain is the best. Sprinkle on the selected space a thin layer of clean, crystal salt (the grains about the size of peas) or ordinary salt of the kind used for salting meat. When the hide has cooled sufficiently, spread it, hair side down, over the salted floor, being sure to straighten out all folds and laps. Sprinkle fresh, clean salt all over the flesh side of the hide, using about 1 pound of salt for every pound of hide. See that all parts of the flesh side receive a sprinkling of the salt. Be sure to use plenty of salt and rub it in well along the cut edges, head, neck, legs, wrinkles, and the heavy portions.

If several hides are to be cured, pile them one on top of the other, always hair-side down, with the heads at one end, and salt each one on the flesh side as directed. In piling the hides, do not drag them across the stack of salted ones, as this disturbs the salt on those underneath, causing unsalted spots and spoiled hides. The liquor from the pile of hides must be drained away to prevent damage to the bottom ones. In curing, the hides, if properly salted, will become firm and stiff, when they are known as "salt firm" or "salt hard." This requires from four to ten days, after which the hides are ready for bundling and shipping. They should rarely be bundled immediately after salting.

Finer Salt for Calfskins

In the case of calfskins the practice is similar to that used with cattle or horse hides, although it is advisable to use a finer salt and to rub it in with the hands around the neck, head, tail root, legs, and shanks. Sheepskins require more time for cooling than the other skins and hence they should not be salted in summer until they have been thoroughly cooled for eight or ten hours. About one-half a pound of clean, fine salt should be used to each pound of skin, sprinkling it on by hand and exercising care that every spot on the flesh side of the skin is thoroughly salted. Sheepskins and lambskins should be marketed promptly, as otherwise they are liable to heat rapidly, which causes deterioration and decrease in value and often a total loss. Hence these pelts should be marketed within four or five days after they have been salted.

For the information of farmers interested in the removal, preparation, and marketing of hides, the United States Department of Agriculture has just published Farmers' Bulletin 1055, which will be sent free on request.

TIME TO BUILD SHELTER FOR HOGS NEXT WINTER

Not only is it fashionable, but also it is practical, to build hog houses in the fall when farm work is not so pressing and when the approaching winter demands proper shelter for the swine. Specialists of the United States Department of Agriculture do not recommend any special type of hog house as superior to all others. The style which the individual farmer selects, whether it be a colony house, a central type farrowing house, portable houses, or simple shelters which provide sleeping quarters only, must be decided upon by the farmer himself. It is essential that the buildings should be well constructed so that they will exclude both rain and snow.

Some houses will be provided with wooden or cement floors, others with dust floors. Where dirt floors are installed it is recommended that woven-wire fencing of good quality be stretched about one or two inches under the surface in order to prevent rooting. Furthermore, dirt floors should be wetted down at frequent intervals to prevent the accumulation of dust, which is particularly injurious to hogs where they have to breathe it continually in their sleeping quarters. The use of crude oil is very helpful in remedying this difficulty. The floor of the hog house should also be well drained, particularly in the case of dirt floors, so that when a heavy rain occurs the run-off water will be carried away instead of being centralized within the hog house to form a mud wallow.

The matter of ventilation is often overlooked in hog-house construction. Facilities for air circulation are essential, as in properly ventilated houses there is much less danger of the hogs piling up and little, if any, danger of them going out from the houses in the morning reeking with steam, conditions which usually are present where the hogs are housed in poorly ventilated shelters. It is also essential, the department specialists say, that the hog quarters be provided with plenty of fresh, bright, dry bedding which may be changed at frequent intervals.

Laws Protecting Fur Bearers Summarized; Peltries Fewer

Raw-fur buyers representing all parts of America say that the supply of peltries has decreased from 25 to 50 per cent during the past ten years. There are no longer any virgin trapping grounds. Even in Alaska the two most important fur-bearing animals, the beaver and the marten, have become so nearly exterminated that they are now protected by a close period. This tremendous decrease in the supply of peltries is regarded as serious by the Bureau of Biological Survey, of the United States Department of Agriculture. The fur industry gives employment not only to trappers but to thousands of people engaged in dressing skins, manufacturing garments and distributing them through the various avenues of trade.

Laws protecting fur-bearing animals are designed to keep a steady flow of peltries coming to the market year after year and to prevent the killing of fur animals at times when their pelts are not prime. In an effort to inform the public as to what these laws are, the United States Department of Agriculture has issued, as Farmers' Bulletin 1079, a summary of the latest laws relating to fur-bearing animals. The bulletin includes a summary of the Federal laws, those of the various States, of all the provinces of Canada and of Newfoundland. There is appended a list of Federal, State and Provincial officials from whom copies of the laws may be obtained.

In a boys' club of five members in Iowa, the boys were taught how to prune and spray their trees. One of the boys bought a spraying outfit and did the work for others at 75 cents a tree for the season. This proved successful and the orchards are in good condition.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

Working for Every Home to Be a Place of Beauty

If the plans of the extension service of the Department of Agriculture come to fulfillment, the surroundings of every rural home in the South will be made beautiful. When demonstration work entered the home, it aimed first to lighten women's work, and lift it out of the realm of drudgery, and to aid in food problems. As these questions were being solved the questions of clothing, home conveniences, increased poultry and dairy production, sanitary improvements, food composition, food values, and practical arrangement and furnishing of the kitchen were brought up by the women. This led to demands for practical plans for the whole house and for information as to its best location, drainage, water supply, lighting devices, inside arrangement, and decoration. Now the extension workers find the rural people anxious to be taught more about the beautification of the house and the landscape gardening around it.

The office of Extension Work in the South during the past year has been doing much to meet the demands for knowledge on these points. With the assistance of the department's offices of Rural Engineering and of Horticulture, simple plans and instructions for beautifying the farm home have been made, and this year the county and home demonstrators are sent out equipped with this knowledge.

Georgia is requiring each agent to have two demonstrations during 1919, in every county, on "improving the front yard." In Arkansas the work is being concentrated in one county, which will be made a demonstration county. In Oklahoma, homes in different parts of the State have been selected for demonstration homes. The county and home demonstration agents help plan the improvements and the owners carry them out. Pictures are taken before and after to use for illustrative purposes in other parts of the State. The South Carolina agents not only have many calls made on them for plans for exterior improvement but the people are asking advice on interior decorations. A farm home improved and beautified was one of the exhibits made at the Oklahoma State Fair this year by the extension service of that State.

Little money is required to improve country home surroundings. Thought, interest, and the use of native trees, shrubs, and vines will accomplish much. The house is of minor consideration. It is the setting of trees and shrubbery that holds the eye. Every farm home possesses possibilities of beauty, and the Department of Agriculture through its extension workers intends to help develop these possibilities.

AIDS IN RURAL SANITATION WORK

Gibson County, Tenn., this year appropriated $500 to be used for improving rural sanitation in that county. The disposal of the funds was placed in the hands of the State board of health and the home-demonstration agent of the county. The home-economics worker arranged meetings where there was interest in the project. Two physicians sent by the State board of health and the home-demonstration agent addressed the audience. As a result, three communities in the county decided to carry out the suggestions made by the State board of health. The schools in these communities will have medical inspection and septic tanks will be installed. Each home located there will put in sanitary toilets to make sure that the well water is free from contamination. Those who are landlords will see that all their tenant houses are made sanitary.

MUCH HONEY IS MONEY

There is always a ready sale for good honey, the members of home clubs organized by the Department of Agriculture and the State agricultural colleges have discovered. Some members have made a remarkable success of the work. One in Morgan County, Ky., is known as the "Bee Woman," not only because of the size of her enterprise but because of her ability in handling the swarms. She had 150 hives of bees last summer. From 75 of them she has harvested 500 pounds of honey in six months. The home-demonstration agents teach up-to-date beekeeping to any women in their counties who are interested in bees. Often the difference between a money-making swarm and a hive which barely supplies its own needs is lack of knowledge.

Keeps Three Demonstrations Operating at the Same Time

Keeping three community meetings going at one time in different places is the accomplishment of a Louisiana home-demonstration agent in the busy season.

In Jefferson Davis Parish interest in modern methods of food preservation is keen, and the calls on the home economic worker have been many this year. To give help and advice to all the communities who wanted it has necessitated careful planning on the part of the adviser, for garden products when ready to can can not be kept, and oftentimes more than one community wanted help at the same time.

The home-demonstration agent, who is located at Jennings, La., selects three meeting places along one road. Each group begins at a certain time, with the one nearest the home demonstration agent's office beginning work first. After meeting with the first group of girls and women, giving them instructions and leaving the work in charge of a girl who had had canning experience, the agent drives on to the next place and repeats the performance. After the third group is well started, the agent drives back to the first to give instruction in the next steps of preserving the food at hand. All day this going from one group to another is repeated, until the last jar and tin of fruit and vegetables has been sealed.

On one Monday, in a week of this kind of relayed supervision, the home demonstration agent supervised the canning of 50 cans of No. 2 corn, 100 cans of No. 3 corn, 84 quarts of figs, and 100 cans of tomatoes. The next day 92 quarts of tomatoes, 120 No. 2 cans of tomatoes, and 160 No. 3 cans of corn were canned. Except that the kind of product varied, each day following held a similar accomplishment. To carry on successful supervision of several meetings in several communities in one day requires careful planning on the part of the agent, the aid of some second and third year canning girls who take pride in helping, and an automobile which can be relied on not to break down.

SEWING CLUB WORK POPULAR

Dresses for the house, dresses for the streets, and dresses for all ages have been

made by sewing club women under the tutelage of home demonstration agents from Maine to Oregon. In California 53 women in one class made party dresses last summer. The women in San Diego County, Calif., are much interested in needlework. When a dress-making demonstration is held there by the home economics worker sent out by the Department of Agriculture and the State college, the attendance is always above the average. In May, 206 club women in this county made hats, and in July 136 made dresses, one class of 53 in Escondido making party dresses.

The patterns at these meetings are measured and fitted to the measurements of their owners, then the dresses are cut and made by the corrected pattern without fitting. Class mornings are usually given over to discussing materials and patterns which are to be worked on that day. The cutting and sewing of the garments is done in the afternoon. Attention is also given at these meetings to renovating and remodeling. The array of good-looking gowns on exhibit after one or two dress-making lessons of this kind is surprising.

NEW TO AMERICAN FOODS, LEARN HOW TO USE THEM

Many of the foreigners who come to these shores do not know how to make the best use of American foods. In their own land they have eaten a fairly well-balanced ration. In America, due to lack of knowledge of many of our foods, their diet is prone to be confined to a few articles and to be one-sided. The home-demonstration agents working under the supervision of the Department of Agriculture and the State agricultural colleges are endeavoring to remedy this condition and to teach these people American methods of food selection and preparation.

St. Louis County, Minn., has many Finnish people who heretofore have eaten very few vegetables in the summer and practically none in the winter. The home-demonstration agent of the county spent much time last summer teaching the use of American fruit and vegetables to these people.

Many mistakes were made by them at first because of their lack of knowledge of certain vegetables and their uses. One Finnish gardener planted squash in a solid row through the center of his garden and was astonished and disgusted that the vines spread over most of his small garden. "Must I wait until a cucumber is all yellow before eating it," and "What part and how do you cook squash" are typical questions the agent answered daily. Some Finnish communities have developed such a liking for American pickles that the home-demonstration agent has daily calls for directions for making them. The recipes are given if their recipients promise that only the older members of the family eat them and that they learn how to prepare carrots and greens for the young children. In most cases they comply willingly.

At the county fair this fall a large number of foreign women who had just learned to can were induced to enter samples of their work. They were delighted at receiving a number of premiums. The Finnish women also made an exhibit of homemade soap and of food products peculiar to their country. This exhibit was given a prominent place, and the interest of the crowd caused the foreign women much pride and delight.

USE ROCKS IN FIRELESS COOKERS

Any woman who can not afford to buy a factory-built fireless cooker can make one with little expense. Home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges are teaching women all over the country how to make them. No radiators are used in some homemade fireless cookers, while in others radiators of iron or soapstone are put in to supply extra heat. In place of the regulation type of radiator, some ingenious club women in Alameda County, Calif., are using flat, water-worn rocks as a substitute. The stones were gathered from a creek. Ordinary baling wire was wound around the stone and made into a handle. Data has been kept by one of the women as to the length of time required to heat such a stone as compared to heating a radiator of soapstone or iron. Her conclusion was that the rocks heat as quickly as the usual types of radiator and give as satisfactory results.

MUST ADJUST MEAT INDUSTRY TO BRING ABOUT FAIR PRICES

(Continued from page 1.)

the next year should practically see the end of sheep scab. In 1906 the cattle fever tick occupied a domain of about 700,000 square miles. This has now been reduced to less than 300,000 square miles, and the tick is doomed to practical extinction within the next four years. The hog-cholera campaign, he said, has been of guerrilla character, but the use of antihog-cholera serum, especially in connection with the virus, is a definite means of preventing further outbreaks of serious character. Foot-and-mouth disease has appeared in the United States at six different periods within the last half century, but has been eradicated, with a total of cattle infected during all of these six periods of less than 100,000—a relatively small figure when compared with 67,000,000, the approximate number of cattle in the United States this year.

"To eradicate tuberculosis from live stock in the United States," Dr. Mohler continued, "is a very extensive undertaking, and to some may seem endless. We do not consider it so. We know definitely that tuberculosis can be eradicated from small areas, and what can be done on farms or in an area as large as the District of Columbia can be repeated on a larger scale. There is no insurmountable barrier to the eradication of tuberculosis from the entire United States. Actual accomplishment depends necessarily on public enlightenment and on public cooperation; also on adequate facilities and trained men to do the testing properly. This generation probably will not see the end of the campaign, but others will follow, and, we hope, will push the work to completion."

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended September 27, 1919:

Determining the Age of Cattle by the Teeth. Farmers' Bulletin 1066.

Laws Relating to Fur-Bearing Animals, 1919. Farmers' Bulletin 1079.

Australian Saltbush. (Professional Paper.) Department Bulletin 617.

Brood Coops and Appliances. Department Circular 13.

Management of Growing Chicks. Department Circular 17.

Sources of American Potash. Department Circular 61.

Tulip and Narcissus Bulbs in 1919. Department Circular 65.

Suggestions Regarding Fall-Sown Crops, with Notes on the Live-Stock Situation, September, 1919. Office of the Secretary. Circular 142.

"Better Sires—Better Stock." Plan of Nation-Wide Crusade to Improve the Quality of Live Stock Through Use of Good Pure-bred Sires. B. A. I. LSC-4.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Peppermint for oil is produced in Michigan and Indiana. The crop of 1919 has the estimate of 300,000 pounds of oil from 10,000 acres and marks another step in the continuous decline from 600,000 pounds from 18,000 acres in 1914. The average yield is about 30 pounds of oil per acre.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

How a County Agent Made Farm Paying for Widow and Her Son

The story of a widow and her son in Beaver County, Okla., gives a new evidence of the value of extension work to the individual farmer. Three years ago the woman's brother, who had been running her farm for her, became discouraged and decided to leave the country for the city. It looked as if the farm would have to be sold and the widow and her son, too, would have to live in town. About this time the county agent met the son, a lad of 18, and heard the story. He called at the farm and spent some time convincing the Anderson family that life on a Beaver County farm could be made interesting and profitable. They decided to stay another year.

The son grew a crop that year and invested $300 in two registered Holstein cows, and his mother started a flock of pure-bred chickens. A garden plot was irrigated, surplus vegetables grown on it were canned by the cooked-in-the-can method, and potatoes sufficient for the family's use were raised. In 1917 the Holstein cows returned a profit of $114 in cream, with plenty of skim milk for the chickens and hogs. A $100 calf was sold and another valued at the same price was saved to increase the herd. A big demand for their poultry and eggs meanwhile had been created and a new poultry house was built. During the past winter they built a new house. They would not live anywhere else, now, than on their Beaver County farm.

MACHINES SAVE WORKERS IN HARVESTING SORGHUMS

When labor was cheap the almost universal method of harvesting a sorghum crop was to send men into the fields with corn knives to cut the standing plants off near the ground and place them in shocks to cure. If the grain only was desired the heads were cut and thrown directly into a wagon box. This method is widely used to-day by farmers who grow only a small acreage of sorghum or who are not supplied with the proper farm machinery.

The increasing cost of farm labor has made it almost necessary to substitute machines for laborers. The most efficient machine for handling the sorghum fodder is the row binder, and with it a farmer, assisted by one man to set the bundles up in shocks, can take care of a considerable acreage of sorghum. When once carefully shocked it will keep in good condition until late in the winter and can be hauled to the barnyard to be fed or stacked whenever other work is not pressing.

For the harvesting of grain several ingenious appliances which can be fastened to the wagon box have been devised. These usually derive their power from the rear wheel of the wagon and cut the heads off and deliver them into the wagon as it is driven through the field. A number of these have been described in United States Department of Agriculture and State publications and in farm papers. For the harvesting of large fields it is more economical to use a grain header adjusted to cut at the desired height. Either the grain sorghums or the sweet sorghums can be headed successfully with one of these machines by providing it with a few adjustments so that the cutter bar can be elevated sufficiently to sever the stalk at the proper height. A 12-foot header will cut three rows at a time and a 14-foot one will take care of four rows by careful driving. When the heads are harvested in this way care must be used to keep them from heating after they are thrown into ricks preparatory to thrashing.

Fields which have made a uniform growth can be harvested rapidly and efficiently in this way. Four men are needed to keep the machine going constantly, but two men will be able to cut much more in this way than in any other by operating only one header box and allowing the machine to remain idle while this box is being unloaded.

BOLL WEEVIL BABIES.

All of us have read and reread the pros and cons and why and wherefores of our infant industries, war babies and the like, but Georgia now comes forward with a boll weevil baby. Our tobacco crop for 1919 was a 600 per cent increase over that of 1918, and netted our farmers an average of over a dollar for every man, woman, and child in the State. Our greatest consolation, however, is the fact that our boll weevil baby was not born with a silver spoon in its mouth.—Georgia Extension News.

Buy-a-Fence Campaign Expected to Bring Permanent Benefits

With a view to effecting a practical improvement in the value and the appearance of the farms, a five-day "buy-a-fence" campaign was recently conducted throughout the rural districts of Mississippi. This novel "drive" was joined in by local representatives of the United States Department of Agriculture and the State Agricultural College, and other organizations and agencies. Elaborate plans for promoting the campaign were worked out in advance, including the organization in each county of committees whose duty it was to spread the gospel of better fences. The big saving to forage crops resulting from better fences was pointed out, likewise the labor saved in caring for live stock to prevent overfeeding. An appeal was also made for fields and homesteads that appear well cared for.

Good as were the immediate results of the campaign, it is believed that the permanent benefits will be equally large, in that it concentrated attention on the fence question and is expected to promote greater interest in this important feature of farm improvements.

LATE SEEDING WILL GIVE STAND OF CRIMSON CLOVER

Crimson clover seeding is practically finished by now in all parts of the Southeastern States except in the extreme South. It is still possible to obtain a stand of crimson clover for winter cover and green manure if a heavy seeding is used and if the young plants are started vigorously by a light application of nitrate of soda. On sandy soils at least 20 pounds of seed to the acre should be used, while an even heavier seeding gives better insurance of a complete stand. Seventy-five pounds of nitrate of soda per acre, applied just before the seed is sown and lightly harrowed into the soil, will give the young plants a quick start and possibly enable them to live over winter.

Crimson clover should be sown when the soil is either quite dry or quite moist, according to specialists in the States Relations Service, United States Department of Agriculture. Failures often re-

sult from sowing crimson clover seed when there is just enough moisture to germinate the seed but not enough to keep the young seedlings growing. If the soil is dry, germination is usually delayed until there is a heavy rainfall, while if the soil is wet the seeds germinate at once and the plants are not checked by drought.

When seeded as late as October 15, there is little opportunity for pasturing crimson clover in the fall, even when the plants are stimulated with nitrate of soda. The crop can sometimes be pastured in mild weather during the winter, but care should be taken not to drive heavy animals on to a crimson clover field when the soil is wet, or the trampling of the animals will permanently injure the stand.

One very good way to obtain a late stand of crimson clover is to drill the seed with a grain drill in a field of bur clover. A grain drill equipped with disks instead of shoes does little injury to the bur clover and places the crimson clover seed where there is the best possible chance of germination.

There is a common belief in many parts of the South that unhulled crimson clover seed gives better assurance of a stand than hulled seed. Unhulled seed is rather difficult to sow, as the hulls are covered with hairs and stick together in masses. One hundred pounds of unhulled seed should be equivalent to a bushel of hulled seed, although this varies greatly in different seasons. Many lots of unhulled seed contain an abundance of empty hulls, especially in years when continued rains during the blossoming season prevent the fertilization of the crimson-clover flowers.

FALL CARE ADVISED FOR NEXT YEAR'S RED CLOVER

Both red and alsike clover seed will have been harvested and largely thrashed by early in October. The fields seeded this spring are the ones from which clover hay and clover seed will be taken next year, and in view of the fact that clover seed is scarce and high priced it is desirable that the stands this fall be given every possible chance to come through the winter in good shape, say specialists in the States Relations Service, United States Department of Agriculture. A light top-dressing with manure where this can be done will be helpful, and will be best applied after freezing weather sets in. The young plants should not be pastured too close, nor should they be allowed to bloom and make seed. If the plants come into bloom they should be clipped early. A height of 4 to 6 inches, just before going into the winter, is the most favorable condition.

The preparation of the land on which red clover is to be seeded next spring should be considered this fall. In most parts of the northeastern States, and even in parts of Iowa and Illinois, the application of lime will benefit red clover. On some lands it is absolutely essential for a good stand. Lime is best applied when the land is being prepared for wheat. An application of two tons of fine ground limestone is commonly enough, although on badly run down land or on land known to be very sour three tons per acre may be applied with profit. Clover also needs phosphates and 200 to 250 pounds per acre should be drilled in with the wheat. Both wheat and clover will benefit.

Red clover seed is likely to remain high-priced for a year or two at least, and farmers will find it profitable to devote all the care necessary to preparing their land so as to give the clover crop every possible chance.

COOPERATIVE WOOL SALE PAYS

Fifteen to twenty cents more a pound for ungraded wool was one of the results of a cooperative wool sale held recently in Sussex County, N. J. The sale, which was the first of its kind in that county, was held under the supervision of the Sussex County Sheep Breeders Association, assisted by the county agent of Sussex County. About half the breeders of the association and 10 Warren County breeders pooled their wool. The pool of 7,378 pounds of ungraded wool brought 65 cents a pound as compared with 45 cents to 50 cents received by individuals earlier in the season.

COW TESTING WORTH WHILE IN PROSPEROUS DAIRYING

Practical reports from the various cow-testing associations throughout the country show the value of this work of separating the chaff from the wheat in cowdom. The modern cow-testing association is the best scientific agency for isolating and eradicating the drones from the heard, while it also is of value as a detector of the highest producing animals. Such studies of the cow's appetite, digestion, and production are the economical and logical methods of increasing the net earnings of the dairy.

One Ohio cow-testing association, whose members owned 385 cows last year, reports an association average of 345 pounds of butter fat per cow, and that the present production of the cows is 72 pounds of fat more apiece than it was at the first of the year.

Another cow-testing association announces that its expenses during the last five years have been below $4,000 while the value of the increased production during only the last year has aggregated over $11,000. This remarkable increase in income is not abnormal for this particular association as during each year the production of the cows has improved and the returns greatly increased. Members from another association report that all other cow owners are feeding the individual animals according to the capacity and production of each cow. This is a remarkable change from conditions a few years back when the cows' feed boxes at mealtime always contained the same allowance of feed.

"There is certainly all the difference in the work between bulls," comments a member of a successful bull club. "Do you recollect that old 'Bonnie' cow of mine whose record was only 537 pounds of fat? I have raised three heifers from her, the best of which produced 715 pounds of fat during the last year, while the other two heifers, which are younger, yielded respectively 363 and 361 pounds of fat. These heifers were sired by different purebred bulls and evidently the difference in the qualifications of the sires as regards fat production is aptly characterized in the production of their daughters."

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for map colorist, for both men and women, on November 5, 1919. A vacancy in the Forest Service, Department of Agriculture, at $900 a year, for duty at Albuquerque, N. Mex., and other vacancies in the Federal classified service in Washington, D. C., or in the field, will be filled from this examination. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Marketing methods and marketing problems are excellent subjects for discussion by various rural organizations, many of which resume their meetings this fall. A number of such societies already have prepared programs on which are listed questions relating to farm management, disposal of farm produce, as well as many topics of general interest.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Scrub Sire's Foes Line Up.

Reports from many parts of the country indicate that the nation-wide crusade for better live stock through the use of pure-bred sires of good quality is continuing to win enthusiastic recruits. Arizona has attested its interest by asking for 1,000 enrollment blanks. A professor of animal husbandry in Kentucky writes that, though he lives in the midst of a blue-grass country, far famed for its fine breeding, he feels that there is need for the crusade in his locality and offers to help drive out the scrub sire. South Carolina estimates that about 800 live-stock owners will banish scrub sires from their farms within the next year.

The emblem granted to all who keep and use only pure-bred sires bears the name and address of the live-stock owner, date enrolled, and a serial number signifying the total number of emblems issued to date. It measures 8 by 10 inches, is printed in two colors, and carries the seal of the United States Department of Agriculture. Below the seal space is left for signatures. The Federal and State agencies promoting this movement for better live stock emphasize the fact that this emblem is an official token of Uncle Sam's direct interest in the work of every man seeking to improve his live stock. It also indicates that the Government recognizes that quality is of greater importance than quantity in so far as the betterment of live stock is concerned.

Officials of the Bureau of Animal Industry expect that stock raisers will take special pride in displaying these emblems. Later, when the enrollment becomes large, it is predicted they will point to the low numbers on their emblems as evidence that they were among the early recruits to the campaign.

Farmers Form County Councils.

The movement to organize the farmers of Tennessee for mutual benefit and better agriculture has been given special impetus in recent months by the creation of county councils of agriculture. More than a dozen of these organizations have been formed in that State. Each council is designed to serve as a focal center for all activities affecting rural life and interests in its county. These organizations are being fostered by the Department of Agriculture in cooperation with the college of agriculture of the University of Tennessee, and other State agencies.

The council in Blount County has already held a successful get-together picnic, while cattle sales, cooperative buying, and the promotion of community betterment are other projects with which various councils are concerning themselves. It is anticipated that within the next 10 or 12 months the movement will have spread to more than 30 counties. A State federation of these bodies is also a possibility.

The plan of organization of the councils is simple. No one draws a salary, the county agricultural agent acting in an advisory capacity for the unit. The membership fees are usually used to rent headquarters, which serves as a meeting place for farmers when they come to town.

Electricity in Logging Camps.

A lumber company cutting timber from one of the National forests has installed over a mile of electric transmission line through the woods to supply an electric logging engine with power. It is planned ultimately to use electricity for the entire camp. Current is developed at the mill. Since many forest fires start from logging equipment and camps, the government foresters regard the introduction of electrical equipment with much favor.

United States Helps Plan Farmhouses.

It does not cost any more to build a house which will be pretty and convenient than it does to erect a homely and inconvenient dwelling, the home-demonstration agents of the South are telling the people in their territories. The State agricultural colleges and the United States Department of Agriculture are backing up this "home beautiful" movement. In some States the work is yet in the lecture stage and in others demonstration homes are being erected which are to serve as good examples of architecture in that community.

Such a home was built last summer in Talladega County, Ala. Not only its plans, but its decoration and landscape setting as well, have been made according to the designs of the Government experts. It is up-to-date in every detail, but strict economy has been used in the plans. Beauty of line and material are to be found in this farm dwelling. So much care has been put on the floor plans and so many labor-saving devices have been built in that housekeeping in it will be easy. The house is built of lumber cut on the farm and it is located on a main thoroughfare, where a comfortable, well-planned, and pretty farm home can be a source of inspiration.

Biggest Hog Shipment Marketed.

The largest individual hog shipment ever received at the Kansas City market, consisting of 949 hogs which averaged 280 pounds apiece, a total of 265,720 pounds of pork on the hoof, recently was received from a Livingston County, Missouri, farmer. These porkers had rail service de luxe, as the 16 cars they occupied were handled as a special live-stock train. The extra attention accorded this shipment was worth the trouble, as only three hogs, or about three-tenths of 1 per cent were lost.

Disinfection Houses Ready.

All along the Texas-Mexican border, equipment has been completed of the disinfection houses erected by the United States Department of Agriculture for the purpose of making sure that no larva or moth of the pink boll worm of cotton enters the United States. What is known as the pot method of disinfecting the interior of cars and cleansing the outside was discontinued on September 30, and the only fumigation that now is accepted as meeting the requirements of the Federal Horticultural Board is fumigation performed by the employees of the board in the disinfection houses.

Charges have been fixed in such a way as to cover the cost of the chemicals and labor required in fumigation. The fee is $5 for a railroad car and 50 cents for any other kind of vehicle. Charges for fumigation of freight not carried in vehicles will be adjusted to cover actual cost.

Farmers Unite to Fight Rats.

A fund of over $1,200 has been raised to fight rats in Palm Beach County, Fla. The rodents in that region have multiplied with such rapidity that some farm-

ers fear 75 per cent of their potatoes and peanuts have been destroyed. Owing to the extent of the territory over which the pests have been roaming, nothing short of a widespread cooperative action could be effective; consequently, the local county agent has taken the matter in hand. After a survey of the territory, he laid out a systematic offensive campaign. Under his directions the farmers have undertaken to place poison with various sorts of baits all along the lake front on specified days.

Much of the region covered in this fashion is grown up with weeds or is still uncleared, and, therefore, the task is of considerable magnitude. However, it is anticipated that the fall crops will benefit decidedly by the campaign and that the expenditure of the fund, which was contributed by local business men, will prove a profitable investment.

American Canning Spreads.

Not only will the French people profit by the lessons in home canning and drying which have been given their agricultural leaders this summer by canning experts of the United States Department of Agriculture, but Syrians, Egyptians, Armenians, and Algerians, as well, are to learn American food-preservation methods. The French Government arranged so that all its agricultural leaders and teachers could attend the demonstrations which were given at Grignon by the Americans. Beside the French men and women who took the course, the woman in charge of a large Government school in Algeria, two men from Syria, and two from Egypt attended the lectures. The Algerian teacher, in addition to the regular demonstrations and practice periods, took extra work outside. She will teach home canning and drying in Algeria this year.

One of the men from Syria who was a student at the canning course is a doctor of science and a director of the observatory in Syria. The other is supervisor of all the Jesuit missions in Syria and Armenia. They plan to introduce the work to Syria and Armenia. The two men from Egypt had just graduated from college and were ready to leave for their home in Cairo when the canning demonstrations began. They became so interested that they postponed their departure and attended all the lectures. They also asked for instruction in county-agent organization. These Egyptians hope to come to America in the near future and study American extension methods.

The work in France will not stop with the return of the American teachers, for the leaders who took the course will teach the French people home canning this fall and the American committee for devastated France is taking up the work. A bulletin on canning has been written by the American home economic workers for the use of the French Government.

Carrier Pigeons Aid Foresters.

During the recent severe forest fires in certain sections of the West, carrier pigeons were successfully employed to convey messages from fire fighters "at the front" to headquarters. The test of the birds for this use was on a limited scale but has encouraged the Forest Service officials to believe that they can be employed profitably on a larger scale.

The experiment lends special interest to a plan which is being considered for cooperation between the Department of Agriculture and the Navy Department, under which carrier pigeons and equipment of the latter department may become available. To establish a successful carrier pigeon system it will be necessary to lay plans during the coming winter, to have the posts properly located, and get the birds acclimated and begin their training. Flights of 600 miles in a single day have been made, while a distance of 140 to 200 miles means a two or three hour flight for the average bird. Since the distances which would be covered in Forest Service work are considerably less than this there appears to be no difficulty in this regard. In most instances the flights from fire fighting areas to headquarters would be considerably less than 50 miles. The value of the birds would be particularly great in mountainous regions where travel is difficult.

Young Veal Is Good Food.

Until five years ago, meat of calves three weeks old or less was regarded with suspicion and was not regularly salable. It was believed to be indigestible, lacking in nutrition and not generally wholesome. This seems to have been an American prejudice without any foundation, for it is a standard article of diet in Europe and no ill effects result there from eating young veal. The cases of meat poisoning resulting from the eating of veal have been shown to be due to poison-producing bacteria which contaminated the meat.

Experiments conducted by the Bureau of Animal Industry, United States Department of Agriculture, show that for food purposes, a pound of meat from a young calf is as good as a pound of the most mature beef. Following the conclusive experiments, the Federal meat inspection regulations were amended so as to permit passing carcasses of young calves which met with the amended requirements. There are more than 20,000,000 dairy cows in the United States and they produce fully 10,000,000 calves every year. About half of these calves are heifers and the other half are bull calves. In the past the heifers have been raised by dairymen, but a large number of the 5,000,000 bull calves have been killed at birth, because the milk they would consume in being brought to marketable weight as veal was worth more than they would bring on the market as veal calves. Under the present regulations, it will pay the dairyman to dispose of his young, well-developed calves for food.

Monthly Record for New Road Projects.

An increase for August compared with July in the total mileage of Federal aid project statements approved by the Secretary of Agriculture is shown in the latest report prepared by the Bureau of Public Roads of the Department of Agriculture, the total for August being 1,246.92 miles as against 1,168.66 miles for July. The 125 project statements approved in August involved improvement at an estimated total cost of $18,238,303.19, on which Federal aid in the amount of $7,171,794.84 was requested. The 148 project statements approved in July involved improvement of highways at a total estimated cost of $19,012,480.85, on which Federal aid to the amount of $8,461,571.58 was requested.

Farm Bureaus Plan Federation.

Further steps leading to the formation of a national federation of farm bureaus have been taken. The first step was made when delegates from various State farm bureau associations met at Ithaca, N. Y., in February, 1918. The Iowa State Farm Bureau Federation recently invited the president of the New York federation to address a large gathering of Iowa Farm Bureau members in Des Moines. These two States have been very active in furthering a national federation of State farm bureau associations. A national convention, to which the States have been invited, will be held in Chicago at the same time the American Association of Agricultural Colleges and Experiment Stations holds its annual meeting, November 12, 13, and 14. It is hoped by those interested practically to complete at this meeting the arrangements for a permanent national organization.

Double Deckers for Live Stock.

Use of double-decked auto trucks for hauling live stock is gaining in popularity in the Omaha Union Stockyards, according to reports to the United States

Department of Agriculture. Specially constructed trucks have increased greatly during the current summer as the farmers in this way are able almost to double the tonnage they formerly could haul to market. Trucks of this type are being used extensively in the transportation of feeder sheep from the market to the grazing districts.

New Kind of Baseball Bats.

The present-day penchant of manufacturers and others for substitutes threatens even those trusted baseball bats to which every big league hitter looks to perpetuate his fame. The forest products laboratory of the Forest Service, United States Department of Agriculture, has recently been manufacturing experimentally a number of laminated wood articles with the idea of utilizing small lumber stock. Baseball bats are among the articles which have been experimented on. In practically every instance the products made from this material have given as good service as those made in the regular way. Whether they would satisfy the critical demands of professionals who inspect their white ash clubs with zealous care is a matter as yet undetermined. The fact remains, however, that the initial success in the experiments cited seem to indicate that there is a large field heretofore undeveloped in which laminated wood can be used successfully. Attention is called to the fact that, while some of the bats have broken under severe usage, the breaks were not in the glued joints, indicating that the artificial joining has been accomplished in an entirely satisfactory manner.

Shoe lasts were also made of laminated wood and after undergoing the severest usage in various factories are still serviceable. Hat blocks of a similarly built-up material were tried out thoroughly and proved very satisfactory. Recently constructed specimens of wagon bolsters which were made up with laminations carefully joined just before gluing are standing weather tests well. A wagon company is giving these articles a trial.

HOG HANDLING MAKES BIG STRIDES IN TEXAS

Texas formerly was famous as the home of chaps, spurs, pintoes, and cowboys, but with the plentiful appearance of barbed wire fences and the influx of small live-stock farmers these relics of the range in many cases are winning the discard and are being replaced by A-shaped houses, slopping troughs, self feeders, and plentiful patches of forage crops—the landmarks of the hog.

County swine breeders' associations have been developed on some scale and for the most part have been of two kinds; one for the purpose of shipping market hogs, and the other with the end in view of promoting and selling registered breeding animals. It has been customary for either of these organizations to purchase feed cooperatively whenever the need of importing feed arose.

About eight months ago a cooperative shipping association was organized in Smith County, Tex., by the extension swine husbandmen of the United States Department of Agriculture. During the past winter and spring this club has marketed nearly $300,000 worth of hogs at an approximate saving of $60,000 to the producers. Previous to the formation of this marketing club it was customary for the local buyers to purchase the hogs, ordinarily paying about 5 or 6 cents below the market price for the fat stock. The get-together club has saved for its members much of the profit formerly made by local stock buyers. Its secretary reports that under cooperative shipments the average cost of freight, shrinkage, commission, and yardage a hundred pounds of hog on the hoof has amounted to only $1.

How Shipments Are Made

The secretary of this shipping organization is the local county agent, and whenever enough hogs are ready to ship from farms of the club members to make up half a carload he orders a car and advertises the fact that he will ship hogs from the county seat on a certain date. At the specified time the other farmers in the county that belong to the association assemble their hogs at the station, where the stock is loaded and shipped to the Fort Worth market, the county agent accompanying each shipment in order to see that it is sold to the best advantage and also to make sure that the different grades of hogs are weighed separately.

When the stock are loaded at the shipping point the animals are weighed and usually classified into three grades and thus tagged. A receipt is given to each member who is shipping hogs for the number of pounds that he delivers to the car and the grade that his hogs come under. After the hogs are sold and the county agent returns to the country, he divides the net receipts among the various shippers, after the entire costs have been deducted, according to the number of pounds of pork, on the hoof, each man shipped.

Recently the hog farmers of Smith County have organized a purebred swine breeders' association that is under the same auspices and has the same officers as their market association. This fall these stockmen intend to purchase, in the North, one or two carloads of good, registered breeding stock of the highest type and quality. The local banks have agreed to furnish the money, giving the members one year's time in which to pay the debt and requesting each of the members to purchase at least one purebred animal. Animals of only one breed of hogs will be purchased in order that the county may specialize in quality hogs of special market uniformity, in addition to selling breeding animals to the surrounding communities.

In Nacogdoches County a swine breeders' association has recently been formed in order to improve marketing conditions. The local buyers have been paying 13 to 14 cents for good, fat hogs, delivered at the railroad during the period when market prices at Fort Worth and at Houston, for animals of similar quality, ranged in the neighborhood of 23 cents a pound. Pleasing profits are almost certain to attend this cooperative marketing project as there has not been a single failure among the cooperative farmers' organization in Texas.

Purebred Swine Favored

The value of purebred hogs is being widely preached and enthusiastically practiced throughout Texas. Where farmers go into the purebred business rather than specializing in pork production alone, they generally remain in it longer, take more interest in it, and accumulate more profit out of it than where they specialize exclusively in pork production. The present demand of the South for good purebred hogs is very keen, so that there is little danger of overstocking. Some of the hogmen hold annual cooperative purebred sales twice a year, and offer nothing but the highest quality of animals, which are extensively advertised and usually sold at a profit to the owner, while they almost invariably promise attractive returns to the buyer when properly handled. Considerable hog trade with Mexico is being developed by Texas stockmen. Mexico provides an ideal hog country, but on account of disturbed conditions during the last eight years the domestic hog industry has been almost obliterated.

Texas swine raisers have organized a State association, which is used to coordinate all the county activities, whether they are marketing or on a purebred basis, and up to the present this organization has worked out very successfully. The State society is of great benefit in developing and improving a county organization, as well as being of special value to its individual members, both in an educational and an economic way.

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"BETTER-SIRES" CAMPAIGN ON WITH SCRUB'S DOOM AS AIM

24 States Officially Enrolled, Others Are Lining Up

Aims of Crusade Outlined at Beginning; Campaign to Be Beneficial in Many Ways; No Proof Seen in Pedigree

The United States Department of Agriculture is going to try to induce every farmer to breed his animals only to purebred sires, but it is not going to accept a pedigree as proof that an animal is a worthy sire. In other words, while the department is going after the scalp of the mongrel scrub, it is after the scalp of the purebred scrub just a little bit harder, if possible. In its "Better Sires — Better Stock" crusade, it is going to insist on individuality as well as breeding. This was brought out at the formal meeting held October 1 in the office of the chief of the Bureau of Animal Industry to launch the crusade.

States Enrolled in Crusade

At the moment of officially launching the crusade, 24 States and the District of Columbia were definitely enrolled, and the delay in most of the others is merely a matter of deciding through what agencies the work shall be done.

Department of Agriculture specialists in various phases of live-stock work are agreed that the better-sires campaign will give added impetus to their particular work. Cattle-fever tick eradication, bovine tuberculosis eradication, cow testing association work, cooperative bull association work, hog-cholera control, county live-stock association work, and many other efforts, all will receive added impetus from the better-sires campaign. On the other hand, all of these things will aid the campaign. In fact, they have paved the way for it. The man who has cut down his scrub herd to escape dipping costs in the tick-eradication campaign is in better position to build up with pure blood. The man who has cleaned out on account of tuberculosis is ready to start again with purebred animals. And so of all the rest of them.

As Department of Agriculture officials see it, the campaign will be beneficial in many ways. The man who buys a purebred or two will take more interest in his live stock than when he had only scrubs, will be inclined to give them closer attention, better housing facilities, more carefully selected feed. In short, it will put him in the way of becoming a better all-round farmer. The better stock will return larger profits and the farmer will be in better position to extend his operations or improve his con-

[Continued on page 3.]

MORE MEAT TO COME FROM "BETTER-SIRES" CAMPAIGN.

The definition of the term "pure-bred sires" is written in one word—"economy." There are many definitions, many of them learned and long, that might be written, but the breeding experts of the United States Department of Agriculture, when they met to launch the State and National crusade for "Better Sires—Better Stock," agreed that the primary meaning of it is economy.

The scrub hog requires a certain number of bushels of corn to make 200 pounds of pork. The pure-bred or high-grade hog takes the same number of bushels of corn and makes 300 pounds of pork. The purebred or high-grade cow makes three gallons of milk out of the same quantity of silage that the scrub cow uses to make a gallon and a half of milk. These figures are not meant to be scientifically exact, of course, but merely to illustrate the principal. The result is that the farmer gets more pounds of salable product out of his feed when he uses pure-bred sires at the head of his herds and flocks. He gets more money and his family lives better. But something else happens. When he sells more pounds of a better class of meat or more gallons of rich milk, he feeds the city family better than he did when he kept scrub stock. The final result of pure-bred sires is that the farmer makes more money and the city family gets more and better food, probably at lower prices.

The crusade, the experts say, eventually will tend to result in reducing the cost of living to the consumer without taking the difference out of the pocket of the producer. For that reason, they point out, the city man has a definite, money interst in the better sires crusade. While he can hardly be expected to put the same amount of effort into it that the live stock breeder should, he is expected to give encouragement and aid to the program whenever the opportunity offers. And there will be no lack of opportunity, particularly in the smaller cities and towns where the farmers are in close contact with the city business men.

PROVIDE AGAINST SHORTAGE OF SUGAR-BEET SEED IN 1921

Lack May Be Serious Unless Growers Look Ahead

American Producers Urged by Department of Agriculture to Grow Sufficient for Their Needs—European Supplies Deficient

Shortage of sugar-beet seed in the United States for the 1921 plantings will be serious unless the beet sugar companies and seed growers in this country arrange immediately for the production of a large part of their sugar-beet requirements for that year. This statement by the United States Department of Agriculture is based upon unofficial but reliable reports from representatives of beet sugar companies and seed dealers who have recently visited the sugar-beet seed-producing countries of Europe.

The sugar-beet seed situation for 1921 is serious because of the limited production of sugar-beet seed in Europe as compared with former years, because of the increased activity in beet-sugar production in European countries, and because of the increased acreage planted to beets in this country in recent years. It is probable that several years will elapse before normal quantities of sugar-beet seed will be produced in European countries. American growers, therefore, must depend to a considerable extent upon home-grown sugar-beet seed. There seems to be no good reason why this country should not produce its full requirement of sugar-beet seed annually. The domestic production of sugar-beet

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seed, now totaling millions of pounds, has demonstrated that sugar-beet seed of the highest quality may be produced in this country.

Little Seed for Import

The present indications are that there is sufficient sugar-beet seed, either imported or domestic, now in the hands of nearly all of the beet sugar companies in the United States to take care of the entire acreage to be planted to sugar beets in 1920, but that there is very little foreign sugar-beet seed now available for importation, and that the foreign production in the immediate future will be limited. Since sugar-beet seed stored under normal conditions will retain its vitality for several years, it would be advisable for sugar companies to secure any sugar-beet seed of good quality now available and not more than 2 years old.

More United States Production

The domestic beet-seed production is increasing rapidly. In 1918 about 6,000 acres of sugar-beet seed were grown, while in 1919 upward of 10,000 acres were planted to beet roots for seed in the United States. Unfortunately, drought interfered with a normal production of sugar-beet seed in some localities this past season, but the resulting reduction in yield was local and temporary and should not prevent or retard the efforts that are being made to produce in this country an adequate supply of sugar-beet seed to meet the American requirement for 1921 and the years following.

In order to produce a crop of seed next year for the 1921 planting, it will be necessary to select the beet roots this fall, pit them so they will not freeze during the winter, and plant them as early as soil and weather conditions will permit next spring. Persons desiring full details in regard to growing sugar-beet seed should address the Office of Sugar Plant Investigations, Bureau of Plant Industry, Department of Agriculture, Washington, D. C.

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for predatory animal inspector, for men only, on November 4, 1919, to fill a number of vacancies in the Bureau of Biological Survey, Department of Agriculture, for duty in the field, at $1,500 a year. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

A winter garden in the South beats the doctor both ways. It provides health-giving outdoor exercise and furnishes wholesome fresh vegetables for the diet.

Many Vegetables Are Grown in Winter in Southern Gardens; Cultural Advice

Spinach should be given a prominent place in the southern winter garden and two or three plantings should be made in order to have a succession of cuttings. Spinach requires a rich soil and the seed bed should be thoroughly prepared before the seed is planted. A bed 7 feet wide and 75 to 100 feet long, containing about 7 or 8 rows spaced just far enough apart so that the hoe can be used between them, will provide all the spinach that is needed by the average family. These suggestions are made by garden specialists of the United States Department of Agriculture.

In many parts of the South, Bermuda onions may be grown as a winter crop and used in the early springtime, either in the form of young onions or later as mature spring onions. If grown from seed, the seed should be placed in the ground at the earlist possible moment and later thinned so that the plants stand about 3 inches apart in the row. If grown from sets, they may be planted any time up until the middle of December. The common yellow and white onion sets may be planted during November or December and will furnish young onions during the greater part of the winter.

Lettuce for Winter Growing

Lettuce of the Cos or Romaine type is especially adapted to growing in the South during winter. The ordinary hardy varieties of lettuce require some protection to prevent their being "tip-burned" by frost. For growing the more tender varieties of lettuce, a cold frame or cloth covered frame is essential.

In many sections a fall planting of beets can now be made to advantage, the young or baby beets becoming large enough for table use before their growth is interfered with by cold weather.

Peas can be planted in certain parts of the South late in November or during December and will be ready for gathering early in March.

Carrots may also be planted in January or February and will be large enough for use in the early spring.

Winter cabbage of the Charleston-Wakefield or Jersey-Wakefield varieties can be planted in the open ground during November and will mature the latter part of March or during April. A number of plant growers make a speciality of supplying the hardy, outdoor grown cabbage plants suitable for winter cultivation.

One point which should be borne in mind when planting semihardy crops that are to be wintered over is that very little fertilizer should be used at the time crops are planted, but that an abundant supply should be worked into the soil alongside of the plants about the time that they start an active growth in January or February. If large amounts of high-grade fertilizer are used in the fall, the plants will grow soft and be more subject to injury by cold weather than if they are kept growing slowly. Later, when the weather begins to be warm, the fertilizer may be applied and the plants pushed to a rapid growth. In the case of the first plantings of spinach, the product of which is to be used in the autumn, the general rule above stated should be disregarded and an abundance of highly available fertilizer used. Where spinach is planted later, to be wintered over and used in the springtime, very little fertilizer should be applied at the time of planting and a top-dressing should be worked into the soil about midwinter.

Insist on Good Seeds

Many of the failures of southern winter gardens are due to poor preparation of the land and to inferior seeds. In many cases the land is covered with weeds, which should be removed and the soil afterward turned over and thoroughly pulverized. There is always the danger of securing seeds that are left over from last spring's sales and as a result a poor stand of plants is secured. Insist that the seeds procured for planting the winter garden are reasonably fresh and of high vitality. Good seeds may cost a little more than poor ones, but they will effect a great saving in the long run.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended October 4, 1919:

Australian Saltbush. (Professional Paper.) Department Bulletin 617.

Controlling Important Fungous and Insect Enemies of the Pear in the Humid Sections of the Pacific Northwest. Farmers' Bulletin 1056.

Milk and Cream Contests. Department Circular 53.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Fowl Tick, Destructive Enemy of Poultry, May Be Eradicated by Use of Chemicals

The fowl tick—sometimes called "blue bug"— and probably the worst chicken parasite known to the Southwest, centralizes its activities in western Texas, southern New Mexico, Arizona, southwestern Oklahoma, southwestern California, and portions of Florida. It is a blood-sucking insect which does not establish or maintain itself readily in the humid and cooler sections of the country or in the higher mountain regions.

The fowl tick concentrates on chickens, although it will also attack turkeys, geese, ducks, pigeons, ostriches, and guineas, the turkey ranking next to the chicken as a popular host. It wreaks destruction by reducing the vitality and condition of the birds as well as minimizing egg production. Fowls raised where ticks are numerous are often stunted in growth. Another source of loss is desertion of the nests by setting hens, caused by annoyance from the ticks. Death often results in the case of heavy infestation, the parasites draining the fowls of blood and also poisoning them with certain secretions.

Sometimes in Thousands

In some instances the ticks are so hungry and so plentiful that they swarm over the fowls by the thousands. The symptoms are usually weakness in the legs and droopiness of the wings, the chickens being unable to walk or even get up on the roost. The feathers appear ruffled, and there is usually a loss of appetite. The comb may or may not appear pale. Sometimes death occurs a day or so later. Chickens, soon after hatching, are often killed by becoming infested with ticks.

The chicken tick or "blue bug" is the bedbug of the fowl family. Usually its presence can be determined by examining the ends of the roosts or pulling up loose pieces of bark or boards about the roosts rather than by examining the fowls themselves. Ordinarily during warm weather the eggs hatch in from 10 to 15 days, while in cool weather the hatching period sometimes exceeds three months. The young ticks have six legs and are grayish in color; they usually prowl about the roosts, searching for fowl upon which to prey during the night. They crawl up on the legs of the fowls and attach themselves on various parts of the body, especially where the feathers are not very dense. The ticks attach themselves in bunches on the host and usually are concentrated on the breast, under the wings, and on the thighs and neck. They attach themselves very firmly by their spiny mouth parts and suck blood, usually continuing their blood feast for about a week or 10 days. Then, blood gorged, they drop from the fowl and seek a secret hiding place. Four to nine days thereafter the seed ticks shed their skins and acquire an additional pair of legs as well as more size. Henceforward, they work entirely at night, hiding in crannies and crevices during the daytime. Following each of the first three meals of blood the skin is shed and at the time of the last molt the adult males and females appear. After partaking of another meal of blood the females are ready to lay eggs, the average production being 500 to 900 eggs a female.

Pests Live for Years

The longevity of the fowl tick is remarkable, as some of them have been known to live over two and one-half years without any food, and unquestionably, in infested chicken houses many of them survive longer than this, even when all poultry is excluded.

The rapidity of breeding depends largely upon the temperature. Hot, dry weather apparently does not interfere with the development of the chicken tick; in fact, it appears to be at home under such conditions.

It is difficult to control fowl ticks by the use of chemicals, although two satisfactory solutions, carbolineum and petroleum, have been found to be effective. Carbolineum is more destructive to ticks than is petroleum. It persists longer and possesses the advantage of drying into the wood so as not to soil the fowls. Anthracene, which is the principal constituent of carbolineum, has been found to be about as effective as the latter material. The limiting factor here, however, is the difficulty of obtaining this material on the market. Creosote oil, containing 8 to 20 per cent tar acids, is also very destructive to fowl ticks, but is difficult to use in a spray, owing to its caustic effects on the operator. When applied to the roosts and crevices with a brush it destroys all ticks touched and persists well.

In eradicating ticks it is essential to destroy by fire all the infested material and other equipment which is not valuable.

Complete information regarding the fowl tick is contained in Farmers' Bulletin 1070, which has just been published by the United States Department of Agriculture.

"BETTER-SIRES" CAMPAIGN ON WITH SCRUB'S DOOM AS AIM

[*Continued from page 1.*]

dition. Larger quantities of food products of superior quality will be produced and the consumer also will derive a direct benefit.

The following States had been officially enrolled up to October 1 in the "Better Sires—Better Stock" campaign:

State.	Name and address of official in charge.
Arizona	C. U. Pickrell, extension animal husbandman, Tucson.
Colorado	H. T. French, director extension service, Fort Collins.
Connecticut	H. J. Baker, director extension service, Storrs.
Delaware	H. Hayward, dean agricultural department, Newark.
District of Columbia	Chief Bureau of Animal Industry, U. S. Department of Agriculture.
Georgia	J. Phil. Campbell, director of extension, Athens.
Louisiana	W. R. Perkins, director of extension, University Station, Baton Rouge.
Maine	L. S. Merrill, director agricultural extension, Orono.
Maryland	T. B. Symons, director of extension, College Park.
Massachusetts	R. W. Redman, acting director of extension, Amherst.
New Hampshire	J. C. Kendall, director of extension, Durham.
New Jersey	L. A. Clinton, director of extension, New Brunswick.
New Mexico	C. F. Monroe, county agent leader, State College.
New York	H. A. Hopper, professor animal husbandry, Ithaca.
Oklahoma	J. A. Wilson, director of extension, Stillwater.
Rhode Island	A. E. Stone, director of extension Kingston.
South Carolina	D. W. Watkins, assistant director of extension, Clemson College.
South Dakota	J. C. Holmes, extension live stock specialist, Brookings.
Utah	R. J. Evans, acting director of extension, Logan.
Vermont	Thomas Bradlee, director of extension, Burlington.
Virginia	J. R. Hutcheson, director of extension, Blacksburg.
Washington	S. B. Nelson, director of extension, Pullman.
West Virginia	B. B. Ezell, assistant director of extension, Morgantown.
Wisconsin	K. L. Hatch, assistant director of extension, Madison.
Wyoming	A. E. Bowman, director of extension, Laramie.

Details of the "Better Sires-Better Stock" campaign are contained in a 16-page booklet which may be obtained on request from the United States Department of Agriculture.

The contract price for sugar beets this year is $10 a ton, with some local exceptions. In addition to this price, growers in California, Washington, Michigan, and Wisconsin will be paid an additional price of $1 a ton of beets for each cent in the average price of sugar in New York above 9 cents during the four months beginning October 1. In Ohio the base price for beets is $9 a ton, and for sugar 8 cents, and in some other States the base price for beets is $9.50 a ton.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

MILK AND CREAM CONTESTS IMPROVE MILK SUPPLIES

Friendly rivalry among milk producers and dealers is an imporant feature in the improvement of the milk supplies of cities, says the United States Department of Agriculture in Department Circular 53, "Milk and Cream Contests." The two kinds of contests—the one in which the dairymen prepare their own samples of milk or cream especially for the contest and the one in which samples are collected on the street without previous notification to the producers—are discussed in detail. The discussion includes the method of preparing milk and cream for entry in contests, the method of scoring on cards prepared by the Dairy Division of the Bureau of Animal Industry, shipping and handling at destination, laboratory equipment for conducting contests, methods of analyzing and testing, and publicity methods in connection with milk and cream contests.

Copies of the circular may be had free by interested persons on application to the Division of Publications, Department of Agriculture.

DON'T FAIL TO CAN FRUIT BECAUSE OF LACK OF SUGAR

Don't let surplus fruit go to waste because you can not obtain sugar to use for preserving purposes. Fruit can be successfully canned without it and it can be sweetened when served next winter, or sirup can be used in place of sugar to sweeten it now.

To can without sugar, simply fill the jars containing the fruit with clean hot water, instead of the usual sirup, and process the jars in a hot-water bath. The fruit will not spoil, but it will not have quite as fine a flavor and color as that which is packed in sirup.

Directions for canning by the "cooked-in-the-can" method should be carefully followed to can successfully without sugar, the United States Department of Agriculture suggests.

Fruits canned without sugar are especially good in salads, desserts, pie fillings, ices, and in fruit punches. They can also be made into jams and marmalades when sugar is obtainable. Fruit juices take no sugar and their uses are just as varied during the winter season as are the fruits put up unsweetened. These fruit juices are also available for jelly at a future time when sugar is more plentiful. Vegetables need no sugar, and plenty of canned vegetables are always acceptable during the winter months.

Fruit and vegetables may be high and sugar scarce, but the margin of difference in price between the home canned and the commercially canned product is likely to be as great as when both fresh fruit and vegetables and canned goods were lower in price. The wise are still practicing home canning, sugar or no sugar.

BURIED BOX OR BARREL FOR VEGETABLE STORAGE

Jack Frost soon will kill most of the tender garden crops, even in the South, and home gardeners have been advised not to delay in caring for vegetables now in the garden.

A storage cellar or outdoor pit is, of course, the most desirable place to store vegetables, but not every home gardener has a storage cellar or pit at his disposal and some simple and inexpensive method must be provided. A very effective storage, recommended by the United States Department of Agriculture, may be made by partially burying a wooden box or a large barrel on its side in a well-drained spot in the garden. Irish potatoes, carrots, parsnips, salsify, turnips, beets, and winter radishes can be stored in this manner. Cabbage, as a rule, can be stored to best advantage by burying it in the ground, while celery can be placed in a trench and covered with boards and straw or leaves, with an outer layer of soil to keep out frost. Sweet potatoes should always be stored in a warm, dry place, such as a room over the kitchen where there will be plenty of both heat and ventilation.

If no cellar or storage pit is available a temporary storage should be provided at once and the various vegetables that are adapted to storage should be cared for before it gets cold enough to injure them. Full information regarding the storage of garden vegetables is contained in the Department of Agriculture Farmers' Bulletin No. 879, "Home Storage of Vegetables," which will be sent free on application. The horticultural departments of the State agricultural colleges also have valuable bulletins and circulars on the home storage of vegetables.

MORE NEED THAN USUAL TO SAVE SWEET POTATOES

The Irish potato crop of the North, from all reports, will be extremely short this season, and the usual quantity of potatoes will not be placed in storage. The sweet potato is the main dependence of many southern people, and special attention should be given this year to taking the best care of the crop of sweets now maturing throughout the South, according to United States Department of Agriculture specialists. The usual method of storing sweet potatoes is to bury them in pits in the open ground, but investigation has shown that fully 50 per cent of the sweet potatoes so buried are lost and that some better method of storage should be provided.

Where a considerable quantity of sweet potatoes is being grown on any one farm, it is desirable that a small storage house be constructed, or three or four neighbors can go together, fit up a storage house, and use it jointly.

For the small home supply that is grown in the garden, a warm, dry room over the kitchen or in some part of the house where heat and ventilation can be provided will be suitable. Splendid results are obtained by storing sweet potatoes in crates upon shelves near the ceiling of the kitchen. In order to have sweet potatoes keep properly they should first be cured at a temperature of 80 or 85° and then stored where a temperature of 55 to 60° will be maintained.

Demands for food are still great, and it is regarded as essential that the sweet potato crop of the South be cared for properly, in order at least partially to make up for the shortage of the Irish potato crop in the North.

Three times a day and 365 days in the year you must have food. Why not keep the Southern home garden working and producing something every day in the year? If you do not know how, write the United States Department of Agriculture at Washington for a copy of Farmers' Bulletin No. 934, "Home Gardening in the South."

Competitions Add Interest to Cultivation; Many Small Exhibits Make Show Success

An organized competition among neighbors helps create added interest in vegetable, fruit, and flower growing in a community. To aid those who desire to have a horticultural show or a garden competition, but who do not know exactly how to conduct one, is the purpose of a circular recently issued by the Department of Agriculture. The methods given in it are those which experience has proved to be easiest and best. Among the subjects treated are classification of entries, the arrangement of the hall and of the exhibits, the points observed in judging various horticultural exhibits, and the prizes offered.

An organization already in existence, such as a county or State fair, a farmers' club, a grange, a garden or horticultural club, or a boys' and girls' club, may father a horticultural exhibit or a group may be brought together especially for the purpose. Once organized, this circular suggests, the first step is to outline the scope of the exhibit. Competitions to be interesting must be fair and equitable. In order to make them so, competitors with similar opportunities should be matched against one another. The exhibits should be divided into as small units as possible, so that the person with only a few square feet of ground may show such products as he may grow, in even competition with like products from a large garden.

A large number of small exhibits instead of a few large ones favor a successful show. An important point is to have the premium list made up early, preferably before seeds are ordered. Exhibits should be attractively staged, the entries for a class being kept together. Both classes and individual entries should be plainly and appropriately labeled.

Vegetable, fruit, and flower gardens or the home grounds of a community may be fairly classed and judged. These make most helpful community competitions.

Token prizes instead of those of intrinsic value are all that is necessary for successful competitions.

When the time of the show approaches the exact date must be fixed, and this should not be changed. If it is done it may provoke a feeling of unfairness.

Where competitions of any of the types discussed in the Department's Circular 62 have been held, they have been found not only to stimulate interest in gardening and home adornment, but even more to get neighbors acquainted with one another and develop community spirit.

An exhibition requires considerable effort, but it is usually felt to be well worth while, even by those upon whom the heaviest burden falls.

Fair Prices for Raw Materials as Well as Mixed Fertilizers

Announcement has been made at the Office of the Secretary of Agriculture that the department, in order to stabilize the prices of raw fertilizer materials as well as the prices for mixed fertilizers, has under consideration not only the question of fair prices for mixed fertilizers for the spring of 1920 but also of such raw materials as sulphate of ammonia, tankage, dried blood, fish scrap, rock phosphate, bulk acid phosphate, and cottonseed meal. The manufacturers of cottonseed meal were invited to a conference in Washington on October 7 to consider the cost of manufacture and other facts which will enable the department to arrive at a fair price for this commodity, and the producers of other raw materials were invited to present such evidence as they might desire on the cost of production on October 6 at Washington. "It is the belief of the department, after investigation, that there should be a considerable reduction in the prices of all these fertilizer materials," the department said in announcing these conferences. The manufacturers of mixed fertilizers will send in their proposed prices for the spring of 1920 at a later time.

LESS WOOL USED IN AUGUST

Manufacturers used 10,000,000 pounds less wool in August than in July of this year, although the total for August exceeds that of any other month except July. Consumption during August amounted to 56,000,000 pounds, grease equivalent, as given by the Bureau of Markets, United States Department of Agriculture.

By classes in pounds the August, 1919, consumption was: Grease wool, 40,427,075; scoured, 6,346,756; and pulled, 2,164,645.

Compared to August, 1918, the consumption in August of this year was about 8,000,000 pounds less, but it is pointed out that last year abnormal conditions prevailed and that the figures for August, 1919, probably represent a normal level of consumption.

GOVERNMENT WILL HANDLE INTRASTATE WHEAT APPEALS

Effective immediately, the United States Department of Agriculture will handle all wheat appeals from licensed inspectors' grades on intrastate as well as interstate transactions. Formerly, under the grain standards act, wheat was required to be shipped or delivered for shipment across State lines before an appeal could be taken to the Government.

The new arrangement has been made by the Secretary at the urgent request of Julius H. Barnes, United States Wheat Director, and is effective under authority and during the continuation of the food control act, the wheat guaranty act, and the Executive order of May 14, 1919. Mr. Barnes stated that it was necessary to have the appeal privilege on all wheat whether interstate or intrastate in order to make the guarantee good to the producer of wheat everywhere in the United States.

Pursuant to this agreement Federal grain supervisors in all the large markets of the United States have been instructed to entertain all wheat appeals.

COUNTY BREED BOOKS VALUABLE

Indexing counties as to dominant breed of live stock maintained, through the use of county breed directories, has won great favor in Iowa, where several years ago Linn County inaugurated this work. Such catalogues are valuable in identifying the owners of different breeds and are effective in promoting sales and in attracting prospective purchasers to the locality. They constitute a relatively permanent form of advertising, as ordinarily they are kept for future reference by those who receive them. The directories are best issued under the authority of a county live-stock breeders association or the local farm bureau. Ordinarily the expenses of these booklets are raised by the sale of advertising space to breeders. Practically any rural printing office can put out creditable productions of this class.

Thousands of American families who planted gardens as a war measure have now acquired what is known as the "garden habit," and are growing gardens as a peace measure. It is a good habit to cultivate.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Food Held in Cars at Markets.

Using refrigerator cars for storage houses at freight terminals is holding back perishable foodstuffs from city markets and causing losses to grower and consumer, according to investigators of the Bureau of Markets, United States Department of Agriculture.

A recent report on cars held at terminals made by one of the refrigerator-car lines shows that 67 cars were held an average of 4.37 days at Chicago, while figures on 36 cars at Denver show an average delay in unloading of 6.36 days. Assuming that these figures hold at other markets and that the average time for a refrigerator car to make a round trip is about 20 days, it is pointed out that such delays would decrease the available supply of refrigerator cars by about 25 per cent. This, in the face of a present inadequate supply of refrigerator cars, is hampering the movement of perishable products from an acreage in excess of that of past years.

While the Railroad Administration is using every effort to remedy the situation and much can be done to increase the supply of refrigerator cars through speedier unloading, it is pointed out that the supply will still be inadequate and that it is not being increased by new cars at a rate to give much relief. The acreage of perishable crops is increasing each year, making it more imperative that adequate cold-storage terminals be constructed for temporary storage so that receivers can immediately unload refrigerator cars upon arrival at markets and send them back to to the shippers.

Menace of Animal TB.

One of the most important objectives in the campaign against tuberculosis among cattle, which is sometimes overlooked in the agitation regarding the effect of the disease on stock itself, is the very serious menace which tubercular cattle are to the public health. Children, in particular, are great sufferers from this source of infection.

According to the best authorities tuberculosis of bovine origin represents about 25 per cent of all the cases of tuberculosis in children under 5 years of age. In certain types of the disease it is very much more, but taking the tuberculous cases as a whole, about one case in four of every child under 5 years acquires tuberculosis from cattle. It is estimated that in New York City between 6 and 10 per cent of the children that die in hospitals yearly of tuberculosis die of bovine tuberculosis. Medical authorities point out that the country has been very slow to appreciate the greatness of the menace of bovine tuberculosis in children. This need for greater protection of human beings, particularly children, from the dangers of bovine tuberculosis is one of the things strongly emphasized by the United States Department of Agriculture in its campaign against diseased cattle.

There are only two ways in which the disease can be eliminated. One is to assure that the milk is free from tubercle bacilli when it is produced, and the other is to destroy the tubercle bacilli present in the milk. The Department of Agriculture experts point out that the public should accept the statement that a common herd is free from tuberculosis with a great deal of caution unless there is ample evidence that the tuberculin test has been applied and applied frequently and applied correctly.

Unless the milk which comes from the herd is in fact free from the tuberculosis it should be pasteurized. Furthermore eternal vigilance is necessary to make sure that pasteurization is carried on in the proper manner, otherwise the public consuming the milk is subject to great danger because it is acting on the assumption that it has been protected by proper pasteurization.

Georgia Wars on Stumps.

Land clearing, its methods and benefits, has been the chief subject of interest in rural counties of Georgia in recent weeks, by reason of a State-wide campaign which was started early in September under the auspices of various organizations desirous of making more land available for tillage. A special train, composed of four flat cars loaded with demonstration equipment, a sleeping coach, one passenger coach, a caboose, and two box cars, has been touring the State, making stops at nearly a score of towns and villages. At each place crowds have seen the demonstrations and heard the talks of the campaign party.

The first day of each stop was usually occupied with unloading the stump pullers, tractors, etc., and the giving of a motion-picture show in the evening. Special films were effective in pointing out the benefits to be derived from clearing land. A sign erected at the entrance of each demonstration field announced that no selling or solicitation of sales would take place during the exhibition. The extension department of the Georgia State College of Agriculture, the United States Department of Agriculture, the Railroad Administration, a land-owners' association, and various machinery and implement concerns cooperated in this campaign.

At some of the towns the coming of the train was made the occasion of a holiday, and in one instance a barbecue, with free refreshments and free picture shows.

Machine Tests Paper Tears.

A paper-testing machine has been invented by a member of the staff of the Forest Products Laboratory at Madison. It is expected to render valuable service to the paper industry by supplying data regarding the strength of paper—data that has not been easy to obtain heretofore. The difficulty in testing the tearing strength of paper has always been in securing a constant force of value. Irregularities in the paper structure, due to its fibrous nature, make the reading of the force required to tear the paper very uncertain. The machine now nearing completion overcomes this difficulty by yielding an average force for the entire tear. It simply measures the work done in tearing the strip. Dividing the work done by the length of the tear gives the average tearing force. The length of the tear is the same in all cases so that the machines can be calibrated to read the average tearing force.

More Pork from South.

Five years ago Mississippi marketed only 7,600 head of hogs at St. Louis, indicative of the decidedly limited production of pork in that section. Four years later 99,761 hogs were shipped during the 12 months to the same central market, which is an accurate measure of the increase in popularity of pork production during that period. During the first three months of this year almost as many Mississippi hogs were exported from the State as were shipped out during the en-

tire preceding year. Of course, the high price of fat hogs and the need for a heavy production of meat products have accounted largely for this increase, although much of the decided gain in popularity of the porker has come as the result of southern farmers being awakened by county agents and agricultural extension specialists to appreciate that the South is the ideal raising ground for the hog, and these southern farmers have begun to capitalize their natural resources.

Bounds for Japanese Beetle.

Jiu jitsu is all right in its way, but when the insects of Japan practice it on the commercial crops and fruits of the lands which they visit, their hosts have to instigate superior methods of control.

For example, take the case of the Japanese beetle, which, unasked, immigrated to the United States in 1911 in the grub stage on the soil surrounding iris plants. Finding residence in Burlington, County, New Jersey, this colony of Japanese beetles prospered, multiplied, and increased in compound measure to the extent that soon the horde of pests became so obnoxious that the State Department of Agriculture, in cooperation with the United States Department of Agriculture, had to exercise the ingenuity of science to hold them in check.

The Japanese beetle is a general feeder which attacks fruit trees, grapevines, and many varieties of vegetables, a large number of ornamental plants, and a host of weeds, while it especially likes sweet corn. The beetle is a strong flier during the warm periods of the day, and it is liable to be distributed on the clothing of autoists, pedestrians, or others who travel through infested territories. It is likely to be shipped out on various farm crops, especially on sweet corn, as the beetles penetrate the ears of corn. In order, as far as possible, to limit distribution by such means, a Federal quarantine is now in effect providing for the inspection and certification of all green sweet corn used commercially in infested portions of Burlington County.

Control measures which spell sure doom to the Japanese beetle consist of establishing a belt of poisoned foliage around the infested area. Destruction is also effected by means of poison sprays used copiously on green growth subject to attack, as well as hand-picking or catching the beetles in nets. Other methods of destruction include making away with the grubs in the soil by plowing, as well as by treating the soil with sodium cyanide in solution. Roadways are being cleaned of food plants which are attractive to the pests, in order to prevent dissemination of the infestation through the agency of passers-by.

Plywood and Veneer Defined.

Owing to the confusion which exists in the use of the terms "plywood" and "veneer" the Forest Products Laboratory of the Forest Service, United States Department of Agriculture, has recently formally indorsed definitions which have been recognized by its staff and leaders in the industry for some time and which, it is pointed out, should be generally adopted in order that misunderstanding may be avoided.

The term "plywood" refers to the combination of two or more sheets of veneer glued together so that the sheets cross at an angle. This angle is usually 90 degrees, but not necessarily so great.

"Veneer" refers to the individual unglued sheets of thin board.

TB Work Advances.

An official list of tuberculin-tested herds, just published by the United States Department of Agriculture, shows that in nine months the number of animals in tuberculosis-free accredited herds increased from 6,945 to 19,021, while the number of cattle once tested climbed the ladder from 22,212 to 97,243. Virginia leads in number of accredited herds, as 196 herds, consisting of 1,231 purebred and 3,914 grade animals, have been accredited, while Virginia dairymen have also subjected 487 herds, made up of 6,789 grade and 876 pure-bred animals, to a single tuberculin test without reactors. Minnesota ranks next in total number of animals once tested, as 259 herds, consisting of 4,069 purebred and 3,179 grade animals, have successfully passed an initial test, while 3,428 purebred and 708 grade animals have already been accredited in 131 herds. North Dakota farmers have subjected 3,842 purebred and 4,770 grade animals in 684 herds to the first test, while 68 herds, consisting of 1,374 purebred and 357 grade dairy animals have been accredited. Ohio has given 262 herds, including 3,484 purebred and 1,140 grade animals the first test, and has 19 herds of 710 purebred and 31 grade animals on the "dairy roll of honor."

Club Members Invest Wisely.

How the boys and girls in clubs organized by the United States Department of Agriculture and the State colleges spend the money that they make in club work is as interesting as how they earn it. Tens of thousands bought "baby bonds" or War Savings Stamps. The majority have savings accounts. Some use their profits and prizes to increase the size of their club enterprises. A great many invest it in higher education. It is seldom that one fritters it away in small indulgences. Possibly this is because too many candy and "movie" items do not look well in an account book. These books contain the story of the club boy's and girl's project and are turned in to their club leader at the close of the year.

A little club girl in Charleston County, S. C., is using her earnings to make a first payment on a home. She has always lived in a rented house. Last year she had a club garden and as her interest in the work grew so also did her desire for a home of her own, with an acre of ground attached. She finally decided she would earn one. She has worked during two summers, saving every cent for the future home-purchase money. This fall she will have enough to make the first payment on the little bungalow and the acre of ground she has wished and worked for.

A 12-year-old club girl in Winn Parish, La., recently obtained a perfect mark on a 500-word spelling test. Her father had promised that if she did so he would give her any prize she desired. One of her classmates had been promised the same thing by her father. The classmate asked for a silk dress, the club member for a small steam-pressure cooker.

Iowa Banishing the Barberry.

Iowa cities and towns are practically free of the barberry, as the municipal residents have cooperated actively in exterminating this wheat pest. Hundreds of barberry plants have been destroyed on Hawkeye farms as a result of a systematic search for these menaces by experts of the United States Department of Agriculture and representatives of the State agricultural college. This drive against the barberry has been under headway in 12 other upper Mississippi and Lake region States. Experiences in Iowa indicate that the barberry has been a prolific spreader of black stem rust, as wherever barberry bushes were found subsequently the neighboring fields were badly infested with rust.

New Industry for Southern Girls.

The making of Muscadine grape products is to be a new home industry for Southern club girls, if plans now being made by the home-demonstration agents of the United States Department of Agriculture and State agricultural colleges in the South are fulfilled.

Muscadine grapes are native to all the Southern coast States, and they constitute the bulk of the grape crop in that territory. Until recently, however, little commercial use has been made of them,

as the fresh grapes can not be shipped successfully. When a Muscadine grape is ripe enough for table use it falls from the stem.

During the last decade much experimenting relative to these grapes' growth and use has been done on the North Carolina experiment station farm at Willard. For the purpose of spreading this information a seminar was held at Willard the second week in September. At this meeting were district-extension agents from the States where Muscadine grapes grow plentifully. The week's course of instruction was for the purpose of preparing the home-economic workers to teach the women and girls of the South the culture of these grapes and the manufacture of marketable products from them. Afternoons were spent in the vineyards, studying the different varieties, their care, and methods of pruning. Morning hours were devoted to the making of the grape juice, which is a particularly attractive looking and tasting drink of amber color, and to the utilization of the by-products from the juice in the preparation of vinegar, jelly, pastes, marmalades, sauces, and catsups.

Cuttings will be given to the Southern club girls for prizes in localities where the grapes do not grow at present, and instruction on the making of salable grape products will be furnished the girls in all the coast States this coming year.

Will Exhibit Stallion.

Trubador, a Morgan stallion, used at the Government breeding farm at Middlebury, Vt., will be exhibited at the International Live Stock Exposition at Chicago in early December. This sire will be shown for educational purposes in a cooperative exhibit with the Morgan Horse Club.

GOOD SEED POTATOES FOR MORE POTATOES

The average production per acre of potatoes in the United States is very much lower than in Canada, Great Britain, and European countries outside of Italy.

One of the reasons for the lower production in the United States is that less attention has been given to the character of the seed. Good seed is one of the determining factors in the production of maximum crops of potatoes.

The use of high-grade seed would increase the returns from the potato crop of the country by many millions of dollars.

The production of high-grade seed should be regarded as a special business.

Good strains of seed may be obtained by the tuber-unit, hill, or mass-selection methods through the process of roguing out the diseased and weak hills.

When tubers from diseased or weak plants are planted, a similar harvest will be reaped.

Only seed from productive plants should be used.

Careful attention should be given to securing seed that is free from varietal mixture and that is true to type.

Good seed can not be produced unless the growing plants are given good cultural attention.

As a rule the quantity of seed used is not sufficient to produce a maximum crop.

From 15 to 18 bushels of seed should be used per acre instead of 9 to 11, as at the present time.

All seed stock should be disinfected before planting.

Good storage conditions are essential to insure sound, firm seed at planting time.

These points are discussed in detail in the United States Department of Agriculture's Farmers' Bulletin 533, "Good Seed Potatoes, and How to Produce Them," which was recently revised and will be sent free on request.

BUCKWHEAT PROFITABLE WHERE OTHER CROPS FAIL

Buckwheat has a definite place in American agriculture, limited when compared to the staple crops, but none the less important in a large area of the country. While less exacting as to soil than almost any other crop, it is more exacting as to climate. Therefore, its principal production is confined to the northeastern portion of the country and to high altitudes farther south. However, buckwheat can be grown with at least fair success over a much wider range, according to Farmers' Bulletin 1062, recently issued by the United States Department of Agriculture.

Buckwheat, according to the bulletin, is in general the best grain crop for poor, thin land, and succeeds well on acid soils, climatic conditions being favorable. It is a good crop on new land and on old sod land being again brought under the plow. It loosens and makes friable even the hardest soil, and therefore is a good crop preceding potatoes. Because it makes such a dense growth as to keep the soil completely shaded, it is valuable as a destroyer of quack grass and weeds. It has considerable value as a soil renovator, being able to use insoluble phosphorus and potassium to better advantage than other grain crops. It is useful, also, as a summer cover or green manure crop and as a source of honey for bees. These benefits are, of course, in addition to its value as human food and stock feed.

Buckwheat is less frequently used in rotations than most other crops, but it is pointed out that good rotations may be devised for soil that is too poor for most accepted rotations. One of the suggested rotations is alsike or crimson clover the first year, buckwheat the second year, potatoes the third year, and rye, oats, or wheat, seeded to clover, the fourth year. There is a discussion of the varieties of buckwheat, seed preparation, time of sowing, methods and rate of sowing, fertilizers needed, diseases and insect enemies, harvesting, thrashing, milling, and uses.

Copies of the bulletin may be had free from the Division of Publications, United States Department of Agriculture.

CULLING INCREASES EGG YIELD

The Bartholomew County (Ind.) agricultural agent reports that a total of 1,222 hens were handled in a recent culling campaign and of this number 345, or 28 per cent, were discarded as poor layers. The entire number of hens, 1,222, laid 2,368 eggs the week before culling, while the week after they had been culled the 887 fowls left on the farms laid 2,292 eggs. This explains why it was expedient management to rid the flocks of the 345 lazy loafers which laid only 54 eggs the week after they had been separated from their former mates, despite the fact that they received the same amounts of feed as the profitable producers. The percentage of egg production the week before culling was 27.6, while the week after it was 36.8 per cent.

Honey bees and honey plants were in better condition on September 1, this year, than in the same month in the preceding two years. The Bureau of Crop Estimates, United States Department of Agriculture, reports an average yield of 42.6 pounds of surplus honey per colony (spring count) to September 1; the average for 1918 was 37 pounds; for 1917, 35.9 pounds; and for 1916, 46.1 pounds.

Bean acreage in the five principal producing States—New York, Michigan, Colorado, New Mexico, and California—increased enormously in this country in 1917 and 1918 in accordance with war-food propaganda, to 1,800,000 acres in 1917 and over 1,700,000 in 1918. The previous acreage had been 875,000 acres in 1914, 928,000 in 1915, and 1,107,000 in 1916. Now there is a disposition to recede from these high areas and for 1919 the bean acreage of these five States, estimated by the Bureau of Crop Estimates, is 1,090,000 acres.

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STOCK LOSSES OF WAR NATIONS OFFSET BY GAINS ELSEWHERE

Nine Millions Increase of Cattle in Fourteen Countries

Chief Interest of United States Lies in Future Market for Surplus Pork and Lard—Prewar Conditions in 1921

Cattle, sheep, and swine in nine countries of western Europe have decreased, but have increased in other countries, including the United States, so that the present situation with respect to numbers is very much the same as before the war.

American exportations of meats and meat products may reach the prewar level before the herds and flocks of Europe have been increased to prewar numbers.

These are outstanding statements in a report on the live-stock situation by two United States Department of Agriculture specialists who recently observed conditions in foreign countries.

A summary of their report follows:

"The situation with respect to the total number of live stock in nine countries of western Europe and in the United States, Canada, Argentina, Australia, and New Zealand, considered as a whole, according to the best information available, is very much the same as before the war. The European countries are important from a consuming standpoint, and the other countries are important from a producing standpoint.

"A comparison from the figures given in the accompanying table shows that the total number of cattle in the 14 countries increased approximately nine millions, while the total number of sheep and swine (figures for which are for 13 countries, as recent data on sheep in Belgium and swine in Argentina are not available) decreased approximately two and one-half millions and seven and one-fourth millions, respectively, which practically counterbalances the increase in cattle. This does not take into consideration the former empires of Austria-Hungary or Russia, nor the Balkan States, for recent data regarding the number of animals in those countries are not available. If data were available from these countries, a still further decrease, as compared with prewar numbers of live stock in Europe, would probably be shown.

Increases and Decreases

"The most important factor to be considered, however, is that the total numbers of cattle, sheep, and swine in the nine European countries have decreased, while the total numbers in the other countries have increased. Cattle decreased a little more than seven millions in the European countries and increased a little more than sixteen millions in the other countries named. The loss in numbers of swine in the European countries amounted to approximately twenty-four and one-half millions, as compared with a gain of approximately seventeen and one-half millions in the other countries. The decline of sheep in the European countries was approximately seven and one-half millions and the increase in the other countries approximately four and three-fourths millions.

Swine Situation Important

"Inasmuch as the greatest decrease in the live stock of these European countries was in the herds of swine, this phase of the situation is of vital importance. While some of the countries, particularly Belgium, France, and Italy, may try to increase their supplies of meat and to build up their dairy herds by the importation of a few live cattle, our chief interest lies in the future market for our surplus pork and lard. The length of time which will be required to re-

(*Continued on Page 6.*)

WHAT IS COOPERATION?

Cooperation is the foundation stone and life of the Agricultural Extension Service. It is a term that has been widely used lately in many fields of work. Some times it has been hard to define. Here is a definition, sponsored by the College of Agriculture of Ohio State University, that has made a hit with the agricultural club workers:

COOPERATION MEANS SO TO CONDUCT YOURSELF THAT OTHERS CAN WORK WITH YOU.

URGES WORLD UNIFORMITY IN STANDARDS FOR COTTON

Specialist Says it is Needed for Stabilized Market

Not Difficult to Bring About Desired Condition That Would Benefit Entire Industry—How Producer is Affected

Stability of market conditions is the greatest single thing to be desired in the cotton trade, and it is not to be attained without world-wide uniformity of classification. This statement was made by D. S. Murph, cotton marketing specialist of the United States Department of Agriculture's Bureau of Markets, before the World Cotton Conference in New Orleans, October 14. A fair measure of uniformity, he pointed out, has been attained in the United States as a result of the grades and standards fixed by the Federal cotton futures act, but in world trade no such uniformity exists. The nomenclature of American future and spot markets is not identical with that in Liverpool and other European markets. American exporters, and many other persons dependent in one way and another on the cotton trade, are forced to translate Liverpool into American terms or American into Liverpool terms, with resultant confusion, uncertainty, and loss.

Uniformity Not Difficult

Mr. Murph expressed the opinion that it should not be a particularly difficult matter to bring about world-wide uniformity in grades and types. He pointed out that the thing was nearly accomplished in 1914, before the standards under the cotton futures act were promulgated, but that some slight complication delayed final ratification of the agreement until after the standards were promulgated, and the plans were overturned.

It it to the interest of every person directly engaged in the cotton trade, Mr. Murph asserted, to aid in the effort to secure uniformity. The uncertainty that now exists, he said, makes it necessary for the buyer to allow for a large margin of profit, which may or may not be realized. With types and grades made

uniform and arbitration reduced practically to an exact science, as it could be, the trader or exporter would know exactly what to expect and would be relieved of the necessity for conducting his business as a venture.

Just Price for Producer

"May I remind you," continued Mr. Murph, "of the consideration due, in a study of the entire situation, to the producer of cotton, not only as a matter of justice but as a matter of economic necessity? Prices to the producer, in many instances, do not represent the real value of the cotton. If the marketing of cotton from the primary markets to the great export and import markets were reduced to a more nearly exact basis, the producer would receive a more nearly just price without causing any resultant injury to the trade. It is to the interest of the trade to give him a just price, not only because of the material values concerned but because of the effect of his attitude of mind upon his activities.

"I might refer to the long hours, the hard labor, and the uncomfortable living conditions under which the average cotton farmer in America has labored during the past 50 years, and to the small prices, utterly inadequate to assure the proper maintenance of himself and his family, that he has usually received for his product. In doing so, I would not be basing this argument upon sentiment or sympathy or asking a charitable gratuity for the producer, but would be seeking merely the advancement of justice in accordance with enlightened economic principles, and hoping to impress still further upon you the interest in the producer's well-being of every man who buys, sells, manufactures, or uses cotton."

HIGH PRICES PAID FOR APPLES

The commercial apple crop for the United States is estimated at 23,177,000 barrels, or an increase of 105,000 barrels over the September estimate, compared with a production of 24,724,000 barrels in 1918, according to the October report of the Bureau of Crop Estimates, United States Department of Agriculture. Prices paid for this fruit, from ciders to A grade, are the highest since apple growing became a commercial industry.

Better organization, and better cooperation among the organizations now existing were the themes of addresses when the Gloucester County (N. J.) Board of Agriculture recently held a boat picnic, in which 850 persons, 90 per cent of them farmers and members of their families, participated.

Good Barrel Work Helps Apple Profits; All Equipment in Handling Is Important

With a view to meeting the needs of apple growers in the East, Middle West, and elsewhere who have not placed their business on the most profitable basis, the Bureau of Markets of the United States Department of Agriculture has just published Farmers' Bulletin No. 1080, "Preparation of Barreled Apples for the Market."

The apple crop in a great majority of States is shipped in barrels. A large amount of the barreled fruit reaching the market is impaired in quality by being picked at the wrong stage of maturity. The grower must realize that fruit is not ready to be picked when it clings to the spurs so tightly that the spurs are pulled out or broken. Whether or not the red color develops normally, a reliable indication of maturity is a ground color which, when the fruit is ready for picking, should be turning from clear green to a whitish green or greenish yellow. Yellow, green, and russet varieties of apples are generally ready to pick when they have attained the proper size and the stems separate readily from the spurs.

In picking the crop it is generally advantageous to use both sacks and baskets, as the latter are especially convenient for gathering fruit near the ground, while the sacks can be used to advantage for ladder work, as the pickers have both hands free. The user of sacks must guard against bruising the fruit. In emptying a basket it should be lowered to the bottom of the lug box or other receptacle and inverted gently. A certain type of sack is constructed with a drop bottom, so that the fruit can be emptied without bruising it.

Ladders Help or Mar

Much efficiency in picking depends on the use of ladders of the proper type. Stepladders are especially satisfactory among small trees and in picking from the lower branches of larger trees. The most desirable types are wide and flaring at the bottom, narrow at the top, and supported with but one prop.

Where the crop is packed over tables that are moved about the orchard the packers usually carry the fruit in the picking utensil to the packing table. This work should be assigned to certain members of the crew, who should also furnish the pickers with empty receptacles.

In small orchards, when weather is favorable, apples are usually packed in the open, portable equipment being used, but in large orchards, and in sections where the weather is generally unfavorable, the fruit is often packed in central houses, tents, or sheds. Packing houses afford a better opportunity for installing sizing machinery and other labor-saving devices, thereby promoting efficient organization of the labor force. In small orchards, when climatic conditions are especially favorable, it may be advisable to pack in the orchards, but in most instances some sort of shelter is preferable.

Use of Sorting Tables

Two types of grading or sorting tables are used almost exclusively where the fruit is graded in the orchard, and they are used largely in packing houses. These are the apron table and the canvas or burlap table. While work can be done rather rapidly with the former, it is not altogether satisfactory, as the fruit frequently crowds past the sorters and permits carelessness on their part. The canvas or burlap table is not fitted for running the fruit from the apron into the barrel. The apples must be sorted by hand into baskets, in which they are lowered into barrels.

At present sizing machines are being used quite extensively for barrel packing in all sections of the country to meet the demand for apples of uniform size. In making a selection of a sizing machine the apple grower must determine which machine has a capacity proportionate to the size of his orchard and can be operated most economically. He should also look for one of simple, durable design, free from features requiring too much adjustment, and should make sure that it will not bruise the fruit.

The apple grower raising any considerable quantity of fruit should give attention to mechanical conveyors, which save much labor both in handling loose fruit and light packages.

Operation of Grading Laws

The enactment of grading laws for apples is a comparatively recent development. The present Federal law, known as the Sulzer law, took effect July 1, 1913, and at about the same time a number of States also passed laws. The latter have not been entirely successful, partly because of lack of uniformity. However, a State law that is practical and intelligently enforced will carry with it many advantages.

Not a little importance attaches to the method of packing the barrel. The first step is facing or arranging the first and perhaps the second layer of apples on the bottom. Because the trade cus-

tomarily demands an attractive pack, the better colored apples of uniform size may be placed in the face, but the general quality and size should conform to the grade in the rest of the barrel. The grower who feels the need of a packing house will find suggestions in the bulletin concerning such buildings. Floor plans of various types are given.

Especially where roads are favorable, motor trucks are best suited for hauling the apples to market. The farm wagon most commonly used is equipped with either an ordinary wagon bed or a three-pole frame and has a capacity of 15 barrels. Both types of wagon should be equipped with springs, preferably bolster springs.

DOG LEGISLATION GIVES PROTECTION FOR SHEEP

Information from Connecticut shows that in the year ending September 30, more than 5,000 dogs were killed by dog wardens. Many were shot while interfering with sheep. Less injury to sheep has resulted than in any previous year due, perhaps, to the so-called roaming dog law which went into effect July 1.

The sheep industry in Connecticut has increased 33⅓ per cent the past two years and is still growing. The State legislature recently appropriated $10,000 to be used by the Connecticut Agricultural College in furthering the sheep industry.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended October 11, 1919:

Production of Late or Main-Crop Potatoes. Farmers' Bulletin 1064.

Preparation of Barreled Apples for Market. Farmers' Bulletin 1080.

Notes on Grain Pressures in Storage Bins. (Professional Paper.) Department Bulletin 789.

How Teachers May Use Farmers' Bulletin 876, Making Butter on the Farm. Department Circular 69.

Good Drinks Made of Milk. Department Circular 72.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

A most excellent way of harvesting a large part of the corn crop is to "hog it down," says the United States Department of Agriculture. The hogs do the work with even less waste than if the corn is harvested by hand. Furthermore, they make better gains than when fed. Thus there is a double advantage.

European Farmers Regaining Their Stride; Facts Affect Market for U. S. Products

Crop prospects in eastern Europe are much better than previous official reports and unauthentic rumors have indicated, according to a representative of the United States Department of Agriculture whose observations were taken into account in the department's recent suggestions for fall plantings in America. This representative, under detail to the United States Grain Corporation, made extensive first-hand investigations in Europe. One of his reports was that the territory included before the war in Hungary, Bulgaria, and Roumania probably will export at least 1,650,000 tons of bread grains from current crops compared to 3,900,000 tons in average prewar years.

So far as its production of bread grains is concerned Bulgaria is practically on a prewar basis and Hungary almost so, but Roumania is still far from complete recovery. The most optimistic claims of Roumania for export this year are 500,000 tons as against 1,700,000 tons of prewar years. In the wheat-producing region of southern Hungary the average planted this year is fully 90 per cent of the normal prewar acreage. In that part of Roumania occupied by the armies of the Central Powers, considerable land was not cultivated this year, while that which was devoted to crops was found in rather poor condition. This came about because the Teutonic armies ravaged the country of much of the work stock and agricultural implements. However, despite this, Roumania will be more than self-supporting, and as the maize crop is improving on account of conditions during the summer, Roumania will have a certain amount of export surplus. There will undoubtedly be an export surplus from southern Hungary, while Bulgaria, as stated, is at least as well off in food production as it was previous to the war and will be able to export more than the average amount of cereals.

Evacuated Farmers Returning

On the eastern border of Poland and the western border of Russia the population was largely evacuated during the war. At present, however, the peasants are returning to their former homes despite the fact that food conditions, due to lack of cultivation, are very bad. In some places the peasants are living on bread made from grass, nettle, and heather. Food shortages in eastern Europe for the most part are local. Wheat bread is common in all the markets, except those of Germany, where white bread is not available. Throughout Germany the entire acreage is under cultivation, although it is presumed that the yield will be below normal, due to the lack of fertilizers. Belgium is very highly cultivated with good crop prospects, while France and England have both been seriously affected by drought and their prospects in bread grains are not encouraging. East Galicia has been for five years the stage of fighting. As a consequence of the disturbed conditions there, none of the large estates of that region are cultivated this year, although fully 90 per cent of the peasant holdings are in crop.

Specialists of the United States Department of Agriculture spent seven weeks in travel through southern France, northern Italy, across Jugo-Slavia, through Croatia and Slavonia, the great wheat districts of southern Hungary, and Transylvania to Bucharest in Roumania and north through Roumania, Bukowina, and Galicia, to Warsaw in Poland; thence west through Germany to Holland; through Holland, Belgium, and northern France to Paris. During this tour opportunity was afforded to examine the agricultural situation in the regions traversed.

Limiting Size of Estates

One feature of outstanding agricultural importance is that in Poland, Roumania, Croatia, and Slavonia the governments are now limiting the size of the estates to maximums of from 200 to 400 hectares (a hectare is nearly 2½ acres), the land in excess of these limits being distributed among the peasants. In Roumania, where in many instances large estates have been redistributed among the peasants, the cooperative purchase and use of machinery by the peasants has been promoted, so that a number of neighbors may farm their tracts as one unit with less hand labor. Under the system of land tenure which has prevailed, the peasants operate their land in small holdings which average about 8 to 10 hectares in area, from one-half to two-thirds of all the land being held by the peasants. Under the peasant system of farming the peasants live in villages and go out to their fields for work daily. In this way much time is wasted going to and coming from work. On some of the estates which recently have been subdivided, peasant houses are now being built for the permanent residence of the small land owners. This may result ultimately in locat-

(*Continued on Page 5.*)

Weekly News Letter

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DEVELOPS GOOD SUBSTITUTE FOR SEA-ISLAND COTTON

Sea-island cotton may be doomed by the boll weevil. That, at least, is the opinion of the United States Department of Agriculture, based on the very rapid decline in production during the past two years. For the 10 years ending in 1916 the average annual production of sea-island cotton was about 90,000 bales. The production in 1918 was only about 40,000 bales, and the estimates for 1919 are as low as 20,000 bales.

Without sea-island cotton many industries will be seriously crippled, if, indeed, they are not destroyed, and many planters will lose the major part of their income—unless some other variety of cotton of equally long staple and high quality and more nearly immune from boll-weevil attack is generally accepted and grown in the sea-island districts of the southeastern United States.

There is such a variety of cotton. It is known as Meade cotton, and was originated by the Bureau of Plant Industry, United States Department of Agriculture. It is as fine as sea-island and as long. It can be handled on the regular sea-island gins. It makes profitable yields under boll-weevil conditions.

But—will the planters and ginners take sufficient interest and cooperate closely enough to insure the continued production of an ample supply of pure Meade seed? Upon the answer to that question, in the opinion of the Department, depends the solution of the problem.

Of the 3,000 acres of Meade cotton growing this year, not more than 500 acres can be safely reported as pure stock. In order to keep it pure, no other variety of cotton must be planted in the same neighborhood. The Department of Agriculture is encouraging communities of farmers to organize for the purpose of growing only the Meade cotton and of keeping up the standard by continued selection and careful ginning.

NO PRICES "FIXED" FOR AMMONIATED MATERIALS

Reports have reached the United States Department of Agriculture indicating that statements have been circulated to the effect that the department has "fixed prices" for raw fertilizer materials pursuant to a conference held with the producers of such materials at Washington on October 6 and 7. The department announced on October 10 not only that it has not "fixed" any prices as reported but that after due consideration it has reached the conclusion that, in the circumstances, it would not be warranted at the present time in naming a fair profit for such raw fertilizer materials as sulphate of ammonia, dried blood, tankage, fish scrap, and cottonseed meal. The department, however, will continue fully to exercise its own powers under the licensing system against profiteering as well as in conjunction with the Department of Justice. The amendment to the control act now pending in Congress carries a provision to the effect that anyone who violates the act by profiteering or otherwise shall, upon conviction, be fined not exceeding $5,000 or be imprisoned for not more than two years, or both. Any act of profiteering under the law or any other violation of the law may be prosecuted criminally after the licensing provisions thereof are terminated by a formal proclamation of peace.

DELAY IN UNLOADING CARS RETARDS FOOD MARKETING

Using refrigerator cars as storage houses at freight terminals is holding back perishable foodstuffs from city markets and causing losses to grower and consumer, according to investigators of the Bureau of Markets, United States Department of Agriculture.

A recent report on cars held at terminals made by one of the refrigerator car lines shows that 67 cars were held an average of 4.37 days at Chicago, while figures on 36 cars at Denver show an average delay in unloading of 6.36 days. Assuming that these figures hold at other markets and that the average time for a refrigerator car to make a round trip is about 20 days, it is pointed out that such delays would decrease the available supply of refrigerator cars by about 25 per cent. This, in the face of a present inadequate supply of refrigerator cars, is hampering the movement of perishable products from an acreage in excess of that of past years.

While the Railroad Administration is using every effort to remedy the situation and much can be done to increase the supply of refrigerator cars through speedier unloading, it is pointed out that the supply will still be inadequate and that it is not being increased by new cars at a rate to give much relief. The acreage of perishable crops is increasing each year, making it more imperative that adequate cold storage terminals be constructed for temporary storage so that receivers can immediately unload refrigerator cars upon arrival at markets and send them back to the shippers.

EROSION ON CLEARED LAND MAY BE LARGELY REDUCED

The farmer who contemplates clearing a wooded tract which is more or less uneven in character should make sure that, if cleared, it will not suffer from erosion. How steep a slope of wooded land can safely be cleared for farming depends largely on the character of the soil. It has often been said that no slope steeper than 15 degrees should be cleared and, as a general rule, this probably holds good. However, not infrequently slopes of less than 15 degrees show serious erosion under cultivation, while occasionally others of 20 degrees and more show no serious results. The question, therefore, is one that must be settled for each locality, or even for each tract. Usually the farmer who is in doubt can find in the vicinity a piece of cleared land similar in character to his own, and can judge his problem by the condition of the cleared area. In case of doubt the safest course is to leave the land uncleared, according to the Forest Service of the United States Department of Agriculture.

Some erosion must be expected on all sloping land cleared for cultivation but where the tract is really suitable for farming, however, the erosion can be reduced sufficiently to prevent serious harm. The general principle to be kept in mind is to prevent surface run-off, as far as possible. Water that is absorbed by the soil not only causes no erosion but increases the supply of ground water, diminishes draught, feeds the streams and maintains a steady flow in adjoining streams. One of the most effective methods of preventing erosion on sloping cultivated land is terracing, a subject well worth special investigation by the farmer who wishes to till sloping tracts and at the same time keep the good soil on the upper areas from being washed down the hillsides.

Canning Will Save the Windfall Apples; Dishes in Which they Will Be Welcomed

Apples that fall off the tree or are imperfect, may not keep well nor find a ready sale, but they can be used satisfactorily to make apple products. These products are available for home consumption throughout the entire year, which is an advantage worthy of the consideration of apple growers.

Canning Whole Apples

The following recipes recommended by the United States Department of Agriculture will utilize the windfalls and culls. Do not can any decayed part nor allow apples to become overripe before canning.

Wash the apples, which must be reasonably firm. Remove core and blemishes (pare if desirable when for immediate use). Place whole apples in blanching tray or blanching cloth and blanch in boiling water for two minutes. Remove and plunge quickly into cold water. Pack in large, empty glass jars or gallon tin cans. Pour over the product a hot, thin sirup of about 18 degrees density. This is made in the proportion of 2¼ pounds of sugar to 5¼ quarts of water. Place rubber and top in position. Seal partially, not tight. If using tin cans, cap and tip completely. Process half-gallon or gallon containers 20 minutes in boiling water, in homemade or hot-water bath outfit; 15 minutes in water-seal; 10 minutes in steam-pressure outfit, with 5 pounds of steam pressure. Remove jars, tighten covers, invert to cool, and test joints. Wrap in paper and store. The time of heating will have to be varied according to ripeness and condition of the fruit. Use just enough time to sterilize perfectly, and yet not enough to change the color or reduce the pulp to sauce.

Uses for Canned Apples

Firm and tart apples may be cored and peeled first, then canned by the above recipe. Apples canned whole may be used for the following purposes:

A breakfast dish, with cream and sugar added; baked, like fresh apples; apple salad; a relish with roast pork—the apples may be fried in the pork fat; apple dumplings, deep apple pie, and other desserts in which whole apples are desirable. The sirup of canned whole apples can be used for pudding sauces or fruit drinks.

GRANITE-BLOCK MAINTENANCE LOW

Study of various paving materials suitable for much-traveled highways has disclosed interesting data on granite blocks to the Bureau of Public Roads of the United States Department of Agriculture. Many road builders are coming to regard this material as particularly suitable for trunk lines entering large towns and cities where there is an increasing amount of heavy truck traffic.

Though the initial cost of granite block construction is high, the maintenance of the pavement, if properly laid and grouted, is less than that of almost any other type of pavement. In Worcester, Mass., over a period of 10 years the average maintenance cost per yard was less than a half cent. This also is true in other cities regardless of the fact that in general the streets covered with granite block paving are those carrying the most severe traffic.

AIRPLANE IN CROP REPORTING

The first use of the airplane in crop reporting was made April 30, 1919, by Col. J. L. Cochrun, Ohio field agent for the Bureau of Crop Estimates, United States Department of Agriculture, who made a survey of the progress of spring plowing in Montgomery County, Ohio, from a flying machine. A fairly good conception of the progress of spring work was obtained, as well as the proportion of the total acreage that was under cultivation.

GOOD RESULTS RECORDED IN POULTRY MARKETING

The Poinsett County, Ark., agricultural agent and home-demonstration agent report satisfactory results from a number of cooperative shipments of chickens marketed by farm women during the early summer. Shippers listed their poultry in the same manner as is employed where hogs or cattle are shipped cooperatively, using Monday as shipping day. All the poultry was shipped by express from 60 to 280 miles to the Memphis and St. Louis markets.

A total of 1,573 pounds of poultry was loaded at the shipping point in July; the total weight at destination was 1,411 pounds, the aggregate shrinkage in transit amounting to 162 pounds, or an average of 10.3 per cent. The cost of marketing, including express, commissions, coop expenses, etc., but not inclusive of shrink, was 4.4 cents a pound, while the cost of marketing a pound, including the drift over the railroad was: Hens, 7.5 cents; cocks, 6.3 cents; and springers, 8.5 cents.

The total gross sales amounted to $421.07, which left a net return to the shippers of $352.36 after the shipping expenses of $68.71 were deducted. The market value of this entire shipment on the local market was only $262.89, so that the net gain through cooperative marketing aggregated $89.47, or a total of 34 per cent. Twenty-one shippers participated.

EUROPEAN FARMERS ARE REGAINING THEIR STRIDE

(*Continued from Page 3.*)

ing each peasant as a permanent dweller on his farm.

As a rule the farmer of eastern and northern Europe practices a good rotation, tills his land well, and fertilizes even more extensively than the American farmer.

According to the Federal specialists, there will be but little increase in the acreage devoted to bread-grain crops throughout eastern and northern Europe during the next year, because most of the tillable land is now in crop except those areas which were swept by war. Of course, there will be some small increase if the former battlefields are farmed—as they probably will be as normal readjustment occurs—but in the main it is not anticipated that these countries will greatly increase their acreage. The production of northern Europe will increase as soon as fertilizers become available again, though it will probably not exceed the pre-war production for some years to come.

Uniform new bags, tightly packed and neatly sewed, give the shipment of wool a good appearance that brings a better price.

The home curing of pork, says the United States Department of Agriculture, is a good practice and should be more extensively adopted.

The labor and annoyance of thrashing soy beans may be saved by feeding the soy-bean hay to hogs in the winter, says the United States Department of Agriculture. The beans supply the protein and save the purchase of tankage and middlings. The oil in the beans, together with the leaves of the plants which the hogs eat, keeps them in good condition. Soy-bean hay and corn make an ideal winter feed.

Progress Toward Currant-Grape Industry; Market is Already Created for Growers

The 7,000 cuttings of a dark variety of Corinth grape, known as "Panariti," which the Department of Agriculture distributed last spring from its experiment vineyards and from the vineyards of cooperating growers in California, have grown in splendid fashion the past season, reports show, and as a result much material in the way of cuttings and propagating stock of this variety will be available by the spring of 1921 for the extension of the currant industry in the United States.

The Panariti is a dark currant grape introduced by the department several years ago. Previous to the introduction and distribution of this sort, commercial production of currants in this country was not at all promising in spite of the fact that the United States imports annually over 30,000,000 pounds of dried grapes made from such varieties. These grapes produce the currants of commerce used by housewives in cakes, puddings, and other dishes.

The fact that a great market is already created for this product means much to the grape growers of the West. A product, however meritorious, with which the public is not familiar, requires a great deal of costly advertising and educational promotion to become fairly popular with the consumer. Nothing of this sort is needed so far as currants are concerned. The development of a new branch of the grape-growing industry is of special interest to the vineyardists of the Pacific coast at this time when the industry is undergoing a radical readjustment.

The Panariti grape, it is believed, promises to furnish the basis of an industry which has heretofore not been developed in this country.

The experience of the specialists of the United States Department of Agriculture with this variety has demonstrated that a large annual production of fruit is dependent upon specific horticultural treatment at a particular period in the development of the vine. This treatment is none other than that of ringing the trunk or bearing canes of the vines, which consists in removing a narrow band of bark at the time the vines are in bloom. Unless this is done, the individual fruits in the cluster are not likely to be uniform in size and period of ripening. On vines which have been treated by ringing, the fruits are large, uniform in character and ripen evenly. Because of the climatic conditions in certain districts of the vineyard area of California in which the raisin industry has not developed, this early ripening grape, which must be treated in the same way as other raisin grapes, is expected to prove more successful than have any of the late ripening raisin sorts, thus making it possible to produce currants of satisfactory quality in the bay counties where raisin production has not heretofore developed.

The name "Panariti," which has been applied to this variety, is taken from the name of the one of the most famous grape-growing districts in Greece where this sort was obtained. The Panariti is a distinct variety of the type of grapes used for the making of currants and should not be confused with other sorts of the currant type of grape previously introduced into the United States.

STOCK LOSSES OF WAR NATIONS OFFSET BY GAINS ELSEWHERE

(*Continued from Page 1.*)

establish the European herds of swine has been variously estimated at from one to three years. Judging from opinions expressed by Government officials and stockmen in the different countries visited and from our observations, it appears to us that two years will elapse before the herds are brought back to the prewar normal; that is, the herds will not be back to prewar numbers before the latter part of 1921. This, of course, will depend on weather and crop conditions in the countries affected, the amount of grain available for feeding, and the rapidity with which the production of the dairy herds is increased.

Probable Exports

"While the shortage of live stock in Europe may be felt in those countries for several years, it does not follow necessarily that importations of meat and lard equivalent to the difference between prewar and immediate production will be made while the herds and flocks are being brought back to the old basis. The ability to buy, credits and exchange, taxes, and the needs for retrenchment undoubtedly are factors which will and must be considered. All of these will tend to limit the amount of money sent to other countries for the purchase of food, and it is very likely that our exportations of meats and meat products may reach the prewar level before the herds and flocks of Europe have been increased to prewar numbers. The demand for these products, however, very likely will be considerable for some time."

LIVE STOCK IN FOURTEEN COUNTRIES MOST IMPORTANT IN INTERNATIONAL MEAT TRADE.

Country.	Cattle.			Swine.			Sheep.		
	Before war.	After war.	Per cent change.	Before war.	After war.	Per cent change.	Before war.	After war.	Per cent change
United Kingdom	12,185,000	12,311,000	+ 1.0	3,953,000	2,809,000	−28.9	27,964,000	27,063,000	− 3.2
France	14,807,000	13,315,000	−10.0	7,048,000	4,021,000	−42.9	16,213,000	9,496,000	−41.4
Italy	6,646,000	6,186,000	− 6.9	2,722,000	2,337,000	−14.9	11,163,000	11,752,000	+ 5.3
Switzerland	1,443,000	1,530,000	+ 6.0	570,000	364,000	−36.1	161,000	225,000	+39.7
Belgium	1,849,000	899,000	−51.4	1,412,000	318,000	−77.5	(185,000)	.....	.....
Netherlands	2,097,000	1,969,000	− 6.1	1,350,000	450,000	−66.7	842,000	437,000	−48.1
Denmark	2,463,000	2,142,000	−13.0	2,497,000	583,000	−76.7	515,000	247,000	−50.1
Sweden	2,721,000	2,584,000	− 5.0	968,000	634,000	−34.4	988,000	1,409,000	+42.6
Germany	20,994,000	17,227,000	−17.9	25,659,000	10,080,000	−60.6	5,521,000	5,299,000	− 4.0
9 countries of Western Europe	65,205,000	58,163,000	−10.8	46,179,000	21,596,000	−53.2	63,367,000	55,928,000	−11.7
Decrease in numbers	7,042,000		.....	24,583,000		.....	[1] 7,439,000		.....
United States	56,592,000	67,866,000	+19.9	58,933,000	75,587,000	+28.3	49,719,000	49,863,000	+ 0.3
Canada	6,533,000	10,051,000	+53.8	3,610,000	4,290,000	+18.8	2,175,000	3,053,000	+40.4
Argentina	25,867,000	27,050,000	+ 4.6	(2,901,000)	.....	.....	43,225,000	44,850,000	+ 3.8
Australia	11,745,000	11,040,000	− 6.0	1,026,000	1,169,000	+13.9	92,047,000	91,676,000	+ 0.4
New Zealand	2,020,000	2,888,000	+43.0	349,000	258,000	−26.1	23,996,000	26,538,000	+10.6
5 surplus countries	102,757,000	118,895,000	+15.7	63,918,000	81,304,000	+27.2	211,162,000	215,980,000	+ 2.3
Increase in numbers	16,138,000		.....	[2] 17,386,000		.....	4,718,000		.....
14 countries	167,962,000	177,058,000	+ 5.4	[3] 110,097,000	102,950,000	− 6.5	[3] 274,529,000	271,908,000	− 1.0
Gain or loss	+9,096,000		.....	−7,197,000		.....	−2,621,000		.....

[1] 8 countries. [2] 4 countries. [3] 13 countries.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Watch for Slack-Filled Cans.

Federal food inspectors have been instructed to watch for interstate shipments of canned foods which have been slack-filled; that is, which contain too much water and too little solid food. Officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the Federal Food and Drugs Act, say that action under the law will be taken against violators.

The practice of slack-filling food cans, in the opinion of the officials, is demoralizing to the trade and unfair to the consumer. To put a full can in competition with a slack-filled can places the honest canner at a disadvantage. The consumer almost invariably receives more for his money when buying a full can than when buying a slack-filled can even though he pays a higher price for the full can. In some instances, however, when the canner sells his slack-filled cans to the trade at prices lower than the market price for a full can, the consumer is charged as much for the slack-filled can as for the full can. In such cases both the canner and the dealer share in unfair profits at the expense of the consumer.

Putting excess liquid in cans adds unnecessary expense in canning, storing, and shipping, since the excess liquid requires more cans and increases freight and storage charges all along the line—through the hands of the canner, broker, the wholesale and the retail grocer. Since this additional and useless expense is borne invariably by the consumer, it adds its part to the high cost of living.

The Bureau of Chemistry has conducted investigations to determine the exact amount of solid food of various fruits and vegetables that can be placed most economically and efficiently in the standard-sized cans in order that the fill of can may be standardized. Standardization of canned goods, with reference to both quality and quantity, tends to stabilize values. The results of these investigations have been distributed widely among canners. Federal inspectors have visited as many canneries as practicable during the canning season to supplement the written reports with personal instructions.

It is the intention, say the officials, to invoke the full power of the Food and Drugs Act to stop the shipment into interstate and foreign commerce of slack-filled cans. The Federal Food and Drugs Act, however, does not apply to canned foods consumed within the State where canned. Such canned goods are controlled entirely by State laws. The food officials are of the opinion that there is no excuse whatever for any canners to continue the uneconomical and unfair practice of slack-filling cans.

Distributing Good Sires.

A system of county farmers' exchanges in live stock, feed, and seed has been developed in Iowa during the past year, forces of the State Agricultural College and of the United States Department of Agriculture working in cooperation. One of the principal activities of the exchange is in the distribution of pure-bred live stock. The breeders send a list of the animals they have for sale to the office of the county agricultural agent. He makes up lists of these animals and distributes them throughout the county, frequently advertising in the local papers. If any animals are not disposed of in the county, a list of them is sent to the extension department of the State Agricultural College, where lists are made up for the entire State and sent to every county and to adjoining States. In this way many farmers who otherwise would not have the opportunity of locating pure-bred sires are able to get exactly what they want. Through the exchanges many carloads of pure-bred stock have been sold to buyers from other States.

Wood for Winter Fuel.

Many farms have available large quantities of timber, fallen and otherwise, which the farmer can profitably convert into fuel for the coming winter if he will provide himself with the necessary power-operated equipment. A large amount of labor required in preparing firewood has kept many farmers from using wood for fuel, but with the high prices for coal it behooves the thrifty farmer to consider the advantage of investing in a wood-sawing machine which will make it possible to utilize much timber on his land at a relatively small expenditure of labor. A great many farmers already have gasoline engines suitable for driving such a machine. The latter is comparatively inexpensive. One outfit can do the work for several farmers each year and the purchase of a complete outfit, including an engine, to furnish power may be profitable for a group of farmers or for one who is in a position to do a certain amount of work for his neighbors. The United States Department of Agriculture offers free detailed information on this subject.

Feeding the Undernourished Child.

Children require a foundation of good health, made by adequate nourishment, but many of them in this country are not laying this foundation. The United States Department of Agriculture is assisting the various agencies working to correct this condition. Undernourishment is not confined to the slums. Many a little Tony or Pietro, with his bowl of thick soup and hunk of dry bread, topped off with an apple or an orange, is better fed than numbers of children in well-to-do families. The latter are too often allowed to choose what they will or will not eat, and to select food badly suited to a child's stomach or that is lacking in nourishment. When this happens they are being starved just as much as if their parents, because of poverty, were obliged to give them too scanty a ration. Soggy breads, fried meats, fried potatoes, and heavy pie are responsible for many underfed children.

Milk is absolutely necessary to keep the growing child in health. It contains growth-producing substances not found in any other food. The Dairy Division of the Department of Agriculture is endeavoring to drive this lesson home to the people in every State by means of charts, lectures, and exhibits. The home-demonstration agents, supervised by the Department of Agriculture and State colleges, are also teaching the value of milk in a child's diet and how to select a proper meal for a growing boy or girl. Children who have been given even 1 pint of milk every school day for two months have made remarkable gains in every instance.

Care in Planning Earth Roads

In view of the present widespread activity in every form of road building, and since nearly all public roads are laid out originally as earth roads, the Bureau of Public Roads of the United States Department of Agriculture emphasizes the bearing that the location and design of dirt roads have on future high-

way improvement. In locating and designing public roads the following considerations should be borne in mind:

Sharp curves should be avoided because they are a menace to traffic.

The width should be ample for vehicles to pass each other without leaving the traveled way.

If a road ever becomes of any considerable importance, its users probably will demand that all the steeper grades be reduced to the lowest maximum that would conform to the general topography of the region which the road traverses.

Let the road planners remember that aside from the advantages to traffic of a short route, each mile of additional road involves a considerable extra yearly expense for maintenance, and this alone may warrant the extra expense of shortening the route when the road is constructed, provided that the decrease in distance does not materially increase the steepness of the grades.

Land lines should be regarded only in so far as this may be done without decreasing the usefulness of the road or increasing its ultimate cost.

The pleasing features of the route should not be overlooked. Remember that a large part of the travel on most country roads is for pleasure.

Avoid the necessity for subsequent changes in location. Such changes nearly always work hardship on some of those who have built homes along the original highway.

Home Bureaus Would Federate.

In New York State a movement is on foot to make the State federation of farm bureaus representative of the women's interests as well as those of the men. The women who now have representation in the county organizations, which are known as the joint farm and home bureaus, have asked that the form of the State federation be altered to give them similar representation in the larger association.

Bred Heifers for Club Boys.

Many junior dairy clubs favor the maintenance of bred heifers by their members, because these animals are relatively easy to handle while their young owner gains experience in feeding and caring for the young females before they calve. Subsequently he learns how to handle the calf, which constantly is increasing in value. Where mature cows are distributed among the junior dairy club members more risk is involved, as many of the youngsters are not experienced sufficiently to handle them properly.

The advantage of distributing calves among the next generation of stock breeders, according to United States Department of Agriculture specialists, is the low initial cost of the animal and the fact that its keeping involves less expense and care on the part of the attendant. On the other hand, it requires three years to complete the project. This may be considered undesirable, as interest of the club members will likely become lessened. In both the case of the bred heifer and the calf it is difficult to select the best animals which will prove to be profitable producers, while in the case of the cow, she demonstrates her worth if proper records of production and expenses are kept. The junior dairy club work develops potential breeders who will mature from raisers of a single heifer or calf into full-grown owners of extensive and quality herds.

Six in Family Do Club Work.

A Tennessee father who needed no convincing of the value of club work to his children lives in White County. He has six children in club work and manages to find a place for any project they wish to take up. One daughter has a flock of chickens in one barn, and the second has a flock in another. The third has the use of the poultry house and yard. A fourth daughter has geese. The two older boys each have their sheep and hogs. The boys and girls give their father a per cent in return for the feed and housing that he furnishes. The four girls keep accurate records of their poultry work, and all the children are boosters for the club work supervised by the United States Department of Agriculture and the State colleges.

Better Roads for United States.

Maine, by an overwhelming vote, recently indorsed the proposal to raise the bonded indebtedness of State highways from $2,000,000 to $10,000,000, giving an additional $8,000,000 to be spent on the State road system. This is one of the instances showing a country-wide movement for better highways, as reported to the United States Department of Agriculture, which administers the Federal Aid Road Act.

Study Boll Weevil Poisoning.

Poisoning the cotton boll weevil with dry powdered calcium arsenate promises to be perhaps the most effective control measure yet discovered for this tremendously destructive pest. The United States Department of Agriculture has been experimenting for six years in weevil poisoning. The results of these experiments are shortly to be published in Department Circular 64, "Poisoning the Cotton Boll Weevil." Its publication at this time of year is, perhaps, fortunate. The cotton-growing season is over. For some months the cotton farmer will not be harassed and apprehensive. He will have some leisure in which to lay his plans for another year. If he gets the circular as soon as it is issued—and it is to be had free by writing to the Department of Agriculture at Washington—he will have time and opportunity to study it thoroughly and be prepared to poison intelligently and effectively next year.

One of the principal shortcomings of poisoning work during the past season was that many farmers undertook it without any definite idea of how it was to be done. Many of them bought poison without having arranged for machinery with which to apply it. Others who bought both poison and dusting machinery had failed to inform themselves as to the proper time and method of applying it in order to get the best results.

The Department of Agriculture does not claim that it has yet learned all that should be known about poisoning the cotton boll weevil, but it has established a number of important facts which are clearly set forth in the circular. Knowledge on the subject, however, will be progressive. More will be known next year than is known now. Methods vary, more or less, with local conditions, and all the information as to these variations could not be included in any publication that farmers generally would have time to read. However, the department maintains what is known as the Delta Laboratory, at Tallulah, La. The experts in charge there are prepared to give the individual farmer the most specific advice possible and to aid him by making tests of poisons and in other ways. In addition to getting the circular and reading it, therefore, the department urges all farmers who plan to poison next year to communicate with the Delta Laboratory, describing their local conditions as accurately as possible. The farmer who does these two things should be in position, in a large measure, to save his cotton from boll weevil injury.

The use of cattle for harvesting corn succeeds very well if hogs are later turned in to clean up what the cattle may have left on the ground, says the United States Department of Agriculture. Cattle may be used thus almost as successfully as sheep or hogs.

Choice ham and breakfast bacon can be produced by the farmer for much less than the cost of purchased meat, says the United States Department of Agriculture.

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INTEREST IN CLEAN HERDS SHOWN AT TB CONFERENCE

Higher Values Convince Live-Stock Owners of Necessity

Accrediting Plan Indorsed by Federal and State Officials—How Individuals May Help in Fight Against Disease

With live stock and their products on a higher plane of values than in previous years there has come to stockmen and farmers a keener realization of the need to stamp out animal diseases. This important development in live-stock raising was shown repeatedly at the conference of State and Federal sanitary officials who assembled in Chicago, October 6 to 8, to discuss tuberculosis eradication.

Whereas in the past the unwillingness of cattle owners to have their herds tested in order to locate the disease has been a limiting factor in the work, now there are waiting lists, and the problem confronting State and Federal officials is to meet the demands. Coupled with that problem is the need for improved methods of testing and a more uniform system of certifying to the health of animals so that stock may be shipped interstate with a minimum of inconvenience and delay.

First Conference of Its Kind

The conference, called by the Federal Bureau of Animal Industry to discuss these problems, was the first of its kind, and 158 delegates from various parts of the country were in attendance. In opening the meeting Dr. John R. Mohler, chief of the bureau, emphasized the importance of conducting disease eradication in a manner that is practical and workable as well as being scientifically correct. Likewise he announced the desire of the Federal Government to receive information from all sources to supplement the work of United States Department of Agriculture investigators. A problem of considerable importance is the tuberculin testing of cattle at public stockyards. Such testing is aimed to check traffic in diseased animals and to protect communities which have little bovine tuberculosis from infection by cattle that are diseased or of doubtful health. This condition applies especially to dairy stock and to breeding cattle, but in preventing interstate movement of tuberculous animals, live-stock sanitary officials recognize the need for doing the work in the most expeditious manner.

Discuss Merits of Tests

In addition to the subcutaneous test, which has been the most widely used in detecting tuberculosis in live stock, two other tests—the intradermal and ophthalmic—received close study and discussion. The intradermal test, in the experience of many of the delegates, is especially useful in testing range cattle and those which are unaccustomed to handling. It has a field of usefulness, likewise, in very hot or very cold weather when the atmospheric temperature makes difficult an accurate diagnosis with the subcutaneous test, which depends on a series of animal-temperature readings.

The ophthalmic, or eye test, is another means of diagnosing tuberculosis. This test is applied to one eye, the other being left untreated for comparison, and a characteristic appearance indicates whether the disease is present. The eye test thus far has been used chiefly either in combination with the other tests or as a means of obtaining further evidence on suspicious cases. The discussion indicated the usefulness of all three tests in detecting tuberculosis in live stock, and when used in combination the tests appear to be an almost unfailing means of diagnosing the disease. As a supplement to

(Continued on page 5)

WAR AND THE DAIRY INDUSTRY.

During the world war, American exports of milk products increased considerable more than three fold. In 1914, 70,000,000 pounds of milk left the United States. In 1919, the total was 2,550,000,000. It was not raw milk, of course, but for the sake of comparison the United States Department of Agriculture has reduced the figures to pounds of milk. Butter and cheese constituted the two items making up the total in 1914. In 1919, there was a big added item of condensed milk—something more than half the total.

FARMERS SHOULD REALIZE THAT IT PAYS TO ADVERTISE

Simple, Attractive Methods of Direct Appeal to Buyers Should Be Observed

Well-Designed Bulletin Boards, Seasonal Newspaper Advertising, Cleverly Prepared Pamphlets, Etc., Recommended

Most certainly, advertising pays for the farmer, as for the business man. But the problem for the farmer is to know the kinds suited to his particular needs—the kinds that will bring him money.

To many people advertising means only large display-type announcements more or less expensively illustrated. But for the farmer there are scores of other ways he can be advertising his products every day, and in many cases, at a cost small indeed compared with the returns. The suggestions offered herewith by marketing specialists of the United States Department of Agriculture are designed particularly for the farmer who is in a position to meet a staple demand for given grades of goods. Eggs, butter, fruit, vegetables, dressed meat, dressed fowls, sausage, are among the items the sale of which can be promoted by consistent advertising.

Direct Appeal to Buyers

There are various comparatively simple means of direct appeal to buyers which are particularly profitable because of the tremendous increase in auto travel. To-day that farm is remote, indeed, which is not passed by town or city motorists many times a week. A count on many a so-called quiet country road will show that scores, often hundreds, of vehicles pass daily. A large number of these carry possible customers for farm products. The farmer interested in attracting such trade should look well to the appearance of his place. Perhaps old, unsightly features of which he is not conscious exist, but the passer-by is keen to discern these signs of farm management and hesitates to purchase at a place showing neglect.

A well-designed bulletin board near the front gate is a big asset in attracting buyers. Just as big commercial houses

know that it pays to use skill in preparing a display "ad," so the farmer in many a progressive community has learned to take pains in preparing his bulletin board. It may be only a blackboard that is used, but it should be neat and its message easily read. In addition to the name of the farm or the farm owner, there should be stated in large type the kinds of produce offered for sale. It is generally advisable to add the prices also. On some farms supplementary boards are placed a considerable distance on either side of the main bulletin, calling attention to the latter. A tin, calling attention to the other. A good sample of the wording on these follows:

FAIR VALLEY FARM

READ MARKETING BULETIN AHEAD

But the bulletin board is not the only effective standing advertisement for the farmer. His place will be better remembered by passing strangers if its name appears in neat lettering above or beside the entrance. The custom of naming farms, popular in so many parts of the country, has proved of financial as well as sentimental value. The farmer who possesses an auto truck—and he is legion these days—is overlooking a splendid advertising opportunity if he does not have the name of his farm and his special products neatly lettered on the sides of his vehicle. Then every trip to town is a reminder to hundreds, perhaps thousands, that the owner is still on the map. One dairy farmer who built up a large retail trade in butter, eggs, cottage cheese, etc., in addition to a large milk trade, not only carried on his vehicles the name of his farm (a euphonious Indian name once applied to the region), but made all his trucks and wagons even more distinctive by painting them all the same color, a dark yellow.

Value of Letterheads

Printed letterheads are a real asset for the farmer who is selling to either wholesale or retail trade. Very naturally he seeks to reduce his correspondence to a minimum, but for such business letters as he does write, the printed letterheads will almost surely repay their additional cost. Five hundred or one thousand letterheads and envelopes will last the ordinary farmer a year or longer and their cost is relatively small. The following simple form is suitable for the average farmer. A good printer will be able to suggest styles of type and an arrangement that is distinctive and at the same time dignified.

FAIR VALLEY FARM.
James J. Jameson, Proprietor.

BUTTER, EGGS, DRESSED POULTRY, BY PARCEL POST FROM THE FARM TO YOU.

BLANK, MD._____19

Farmers who handle considerable quantities of produce find it profitable to use printed wrappers. The use of two or more colors in printing these adds to the expense but often is justified by results. Others who do not feel they can afford printed wrappers may find it worth while to have neatly printed business cards for insertion in each package sent out. Another simple means of advertising is printed gummed labels for use on the outside of packages sent by parcel post or express. A suggested wording is given below:

THREE OAKS FARM,
JOHN BROWN, Proprietor.
BLANK, MISSOURI.
EGGS, PERISHABLE.

The farmer who has a display at the county fair can, unless regulations forbid, use some form of display advertising in connection with his own exhibit, thus attracting attention to his personal business in a dignified, effective manner.

Local, and in some cases metropolitan, newspapers offer a direct medium for publicity, particularly for a farmer not too far from his customers. A limited number of city papers have a special department among classified "ads" for parcel post advertising. Where there is such a column it enhances the value of the "ads" published.

Advertising in Press

To obtain satisfactory results from advertising in a newspaper, the paper selected must have a circulation among persons to whom the advertisement will appeal. Advertisements should be short and should give a description of the goods with the prices, and the name and address of the person advertising. In some cities the Sunday edition of a newspaper gives better results than the daily edition. The person who advertises must offer a product that is wanted by the persons who read the paper at the time the product is advertised, in the places where the paper has a circulation. In other words, he must know what to advertise, when to advertise, and where to advertise. The following are suggested forms for parcel post classified advertising:

Fresh Eggs direct from farm. Send —— for three dozen delivered by parcel post prepaid. Fair View Farm, Blank, Va.

Butter direct from dairy. Fresh, clean, and sweet. Send —— for two pounds delivered postpaid by parcel post. Fair View Farm, Blank, Va.

Fresh Vegetables for the family. Quality guaranteed. Send —— for basket of assorted vegetables delivered postpaid by parcel post. Fair View Farm, Blank, Va.

CHERRIES from the tree to you by prepaid parcel post. Picked the day they are mailed. Send — cents for — quarts to Fair View, Blank, Va.

Typical of the small number of farmers who have entered the field of national advertising is one in a Western State who has built up a Nation-wide trade in his special brand of homemade sausage, by using the advertising columns of well-known publications, supplemented by cleverly prepared pamphlets and the use of distinctive wrappers.

New Instrument Measures Wear of Road-Surfacing Materials

Every user of concrete and other improved highways will be interested in an instrument which has recently been designed and made in the research division of the Bureau of Public Roads, United States Department of Agriculture, for measuring wear of concrete and other surfaces. It is anticipated that from readings made with this instrument a large amount of valuable data may be collected not only regarding concrete roads, but also concerning brick, macadam, and other types of surfaces. The instrument consists essentially of two bearing plates each 2 inches in diameter, pivoted on uniform joints to a spanner 11½ inches long. In the mid point is mounted a micrometer whose plunger has a travel of 1 inch and whose dial is graduated to read to 1/1000 of an inch. In order to form a base to which measurements can be referred from year to year, brass plugs are set in the pavement where readings are desired. Readings are taken by resting the bearing plates on the road's surface and allowing the plunger to rest on the base plate of the plug. The instrument is plumbed with the aid of a level and the spanner bar is held parallel to the center line of the road. Other readings may be taken with the bar at right angles to the center line of the road.

An important advantage of this instrument is that accurate data can be acquired rapidly and without interrupting traffic. The base plate in the pavement is protected between readings by covering it with cotton waste and topping with putty. The brass plugs are readily set in any pavement while it is being laid, and at any future time by drilling holes with star drills and setting the plug in cement grout.

A hog in medium condition, gaining rapidly in weight, yields the best quality of meat. Do not kill a hog that is losing flesh, advises the United States Department of Agriculture. A reasonable amount of fat gives juiciness and flavor to the meat, but large amounts of fat are not essential.

Breeding Is the Basis for Performance; Why Purebreds Pay Better Than Scrubs

Why do some lots of cattle top the market while others sell at low prices? Why are some consumers willing to pay 60 cents a pound for prime beefsteak while they would reject from their table inferior steak at half the price? Why is it that some feeders finish their cattle or other animals more rapidly and economically than their associates?.

Usually because "blood will tell." That is, the animals of the better breeding always achieve the more creditable performances, be it in the show ring, at the fair, in the feed lot, on the range, or at the butcher's block. Purebred aristocracy is not nearly extensive enough in the United States and with a view to extending the kith and kin of the first families widely over the country, the United States Department of Agriculture is launching its drive for better live stock, which was inaugurated October 1.

Purebreds for Profits

Purebred live stock is not the result of foible and fancy of the rich, for the leading foundation families of the various breeds, for the most part, have been produced and developed by practical farmers who farmed for a living in either the Old or the New World. For example, Hugh Watson, the founder of the Aberdeen Angus was a tenant farmer; Charles and Robert Collings, who sponsored the Shorthorn breed, were English countrymen of medium finances, while the Tomkins and the Hewers, who were the fosterers of the Whiteface in Herefordshire, England, were merely working to produce beef animals of superior type which would fatten more quickly and cheaper than their predecessors. In a word, purebred live stock from hogs, cattle, sheep, horses and dairy cows to goats and poultry, have all been developed for specific purposes, which are intimately associated with the stock farmer's needs and requirements.

Uncle Sam's big drive for better live stock similarly is a campaign to provide for direct and urgent needs. Farmers with surplus feed should desire live stock of the best type which will most profitably and economically convert these grain and forage surpluses into meat, milk, wool, mohair, and eggs. Eliminating the scrub and mongrel animal, live stock of "no account" family or breeding is one of the greatest improvement steps which possibly could be undertaken by the live stock breeding and raising fraternity of this country. Uncle Sam is enthusiastically behind the project and it remains for farmers interested in stock raising throughout the country, not only to boost for better stock, but also to buy and use farm animals of approved type and breeding, in order that our present live stock population, heterogenous, harum-scarum, and topsy-turvy as it is, may be replaced by superior animals of type and breeding best fitted to supply the market and most suitable to consume profitably the surplus crops of the American farmer.

Why Good Cattle Pay

Just to illustrate that it is about as easy to discount the benefits of good blood in live-stock breeding as it is to try to dry up the ocean with a sponge, here are some figures concerning the butcher standards of a good and a medium steer. In the case of a good steer the loin cuts, which are high priced, constitute 16¾ per cent by weight, as compared with 15½ per cent in a medium steer. The rib cuts compose 9¾ per cent in the better class of steer and only 7¾ per cent in the medium animal. The round, which is a medium priced cut, constitutes 21 per cent in a good steer and 26½ per cent in a medium steer, while the chuck, a low-priced cut, composes 24 per cent of the good steer, and 27¾ per cent of the medium steer. The miscellaneous cuts in the good steer aggregate 13 per cent and only 11 per cent in the medium steer. These figures indicate that the good steer carries a greater percentage of the high-priced cuts and a lower percentage of the mediumed priced and cheap cuts than does the medium steer, although the animals may be fed similar rations. This divergence in meat make-up at market time must be attributed to breeding.

Two shipments of steers which recently arrived on one of the large central markets also are of interest in disclosing the breeding facts. One lot of good steers weighed, on an average, 1,186 pounds and sold at $15.30 a hundredweight, their dressing percentage averaging 61 per cent. These steers carried 6¾ per cent of inside fat while their cost per pound, dressed and ready for sale to the consumer, was 22½ cents. The medium lot of steers averaged in weight 963 pounds and sold at $13.30. These cattle dressed 54 per cent, carried 4 per cent of inside fat, and cost 22 cents a pound when dressed and ready for consumption. Subsequently the meat from the good steers sold for one cent a pound more than that from the medium steers, which resulted in an increased profit to the butcher of approximately half a cent a pound, despite the fact that the good steers cost originally 2 cents a pound more than the medium steers. Furthermore, the inside fat was worth considerably more in the good steers than it was in their lower quality mates. The well-bred lot of cattle sold for an average of $181.46 apiece, while the poorer steers brought only $128.08 an animal, a difference of $53.38 a head in favor of the better bred cattle.

Every Farmer's Opportunity

There is no possible reason why farmers and stockmen should waste their time and tie up and jeopardize their capital in the purchase and feeding or breeding of inferior stock. The supremacy of the better bred animals is practically infallible. They, other conditions being equal, will yield dependable profits which are as certain as the coming of day after a night of gloom. It does not take much capital for any farmer, be he the owner of few head of stock or possessor of extensive flocks and herds, to begin improvement work to better his live stock resources. All that is necessary is that he purchase and use purebred sires in the grading up and betterment of the progeny.

CIVIL-SERVICE EXAMINATIONS

An open competitive examination for assistant in cotton grading, for men only, is announced by the Civil Service Commission. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field, at $1,200 to $2,000 a year, will be filled from this examination. Date of examination, November 9, 1919. Applicants should apply for Form 1312, stating the title of the examination required, to the Civil Service Commission, Washington, D. C.

Assistant in cotton testing, grade 1, salary, $2,000 to $2,700 per year; assistant in cotton testing, grade 2, salary, $1,200 to $2,000 per year, to fill vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C. These positions are for men only. Date of examination, November 18, 1919. Apply for Form 2118, stating title of examination desired, to the Civil Service Commission, Washington, D. C.

One of the chief advantages in keeping cattle is that they assimilate large quantities of roughage and waste feeds and carry them to market themselves in a more concentrated form. The farmer is thus saved the labor of marketing bulky feed products, as in figure 18, and the fertility remains on the farm, says the United States Department of Agriculture.

Weekly News Letter

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Harlan Smith, Assistant in Charge

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

POOR LAMBS A DETRIMENT TO ALL SHEEP RAISERS

Just why the latter part of August and early part of September invariably demoralizes the lamb market has puzzled market students for many years. A large percentage of lambs coming out of Illinois, Wisconsin, Michigan, Ohio, Indiana, and Iowa are small native animals that have to be sold for what they will realize. These lambs coming on a usually congested market sell for a marked reduction and since the consumption of lamb is limited in certain sections of the country, carcasses from these improperly finished lambs do not find a ready sale. This annual occurrence in this section not only penalizes the growers of good lambs but means a loss to the producers of the inferior kinds. Since the product is inferior it has a tendency to prejudice consumers against lamb.

Farmers in the corn belt States surrounding the Chicago market are advised by United States Department of Agriculture specialists to make a concerted effort to put their lambs in better market condition. It is thought certain that most of those who were responsible for this year's native lambs could have put them in much better market condition, with good profit to themselves. It is regrettable that so large a number of undocked and uncastrated, poorly finished, scrub-bred lambs fill the markets from these sections.

The man who keeps a small flock on the farm is advised to remember the importance of handling sheep wisely. The ewes should be bred early enough in the fall so that they will produce their lambs in March and April. The lambs should be docked and castrated when they are 10 days old. They should receive sufficient feed to keep them growing in order that when they are ready for the market in about four months they should weigh from 65 to 70 pounds and carry a uniform covering of flesh. Lambs which are well bred, properly cared for, docked and castrated, and in good flesh will go onto the market a credit to the man who has produced them and will find a ready sale.

SAN JOSÉ SCALE MAY BE DRIVEN FROM FRUIT TREES

"The San José Scale and Its Control," which is Farmers' Bulletin 650, just issued in revised form by the United States Department of Agriculture, contains a description of the insect, its natural history and habits, means of distribution, food plants, natural enemies and, most important of all, ways of controlling it. Attacking, as it does, practically all deciduous fruit trees, this minute insect is one of the most generally dreaded pests with which the fruit grower has to contend.

The bulletin says that the insect can be kept well in check by thorough annual treatment during the period when the plants are dormant, and full instructions are given as to how treatment should be applied. The various washes are discussed and conditions outlined under which one may be preferable to the others. Full instructions are given too for making the washes at home, including the materials and the equipment necessary. Various kinds of spraying apparatus are also discussed.

Copies of the bulletin may be had free by writing the Division of Publications, United States Department of Agriculture, Washington.

WATER ADDED TO OYSTERS IS FOOD-LAW VIOLATION

Oysters shipped into interstate commerce containing added water from soaking or excessive washing violate the Federal Food and Drugs Act, say the officials of the Bureau of Chemistry, United States Department of Agriculture, who have investigated commercial practices of handling oysters. Food inspectors have been instructed to watch shipments of oysters coming within the jurisdiction of the Food and Drugs Act in order that the practice of soaking may be stopped.

Some shippers add water to the oysters by soaking them for some time in fresh water containing much less salt than sea water. The oyster will soak up sufficient fresh water to increase its weight and bulk from one-fifth to one-fourth. Four quarts of oysters can be made to fill a five-quart measure by the simple process of soaking.

Some dealers deliberately soak their oysters in fresh water for the purpose of increasing the bulk. Others unintentionally produce the same result by a long process of washing in fresh water. In either case the consumer pays for the added water. Oysters may be washed thoroughly in water of the same salt concentration as that from which they were taken without materially increasing the bulk. Whether done intentionally or unintentionally, the addition of water to oysters which are shipped into interstate commerce constitutes an adulteration under the terms of the Food and Drugs Act.

Appropriate action will be taken, say the officials, on all shipments of oysters found to be in violation of the Federal Food and Drugs Act.

Reports giving the results of the investigations into the best methods of handling shucked oysters will be sent to oyster dealers upon application to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

DEPARTMENT NEEDS MEN FOR DEPUTY GAME WARDEN

The United States Department of Agriculture is in need of a well-qualified man, not less than 25 nor more than 45 years of age, to fill a vacancy in the position of deputy chief United States game warden, and the United States Civil Service Commission will give a practical open competitive test to secure the right man. The entrance salary will be between $2,500 and $3,000 a year. Headquarters will be in Washington, D. C.

Applications will be received by the Civil Service Commission up to and including November 4. Full information and application blanks may be obtained from the secretary of the local board of civil service examiners, at the post office or customhouse in any of 3,000 cities, or by writing to the United States Civil Service Commission, Washington, D. C., giving the title of the examination "Deputy Chief U. S. Game Warden," and requesting Form 2118.

In the marketing of hay and roughage there is a large bulk to handle and haul to the point of delivery. The United States Department of Agriculture points out that this means much extra labor for the men and teams on grain and crop farms, and much fertility is taken off which might be returned to the fields if the products were fed to live stock.

Good Apple Sirup from Windfall Apples; How to Make Product Useful in Cooking

Farmers who have large numbers of culls and windfalls may advantageously convert them into apple sirup, which has many uses in cooking.

To make apple sirup add 5 ounces of powdered calcium carbonate to 7 gallons of apple cider. Powdered calcium carbonate (carbonate of lime) or, to give it its common name, precipitated chalk, is a low-priced, harmless chemical available at any drug store. Boil in kettle or vat vigorously for five minutes. Pour the liquid into vessels, preferably glass jars or pitchers, allow it to stand six or eight hours, or until perfectly clear. Pour the clear liquid into a preserving kettle. Do not allow sediment at bottom to enter. Add to the clear liquid one level teaspoon of carbonate of lime and stir thoroughly. The process is completed by boiling down rapidly to a clear liquid. Use, density gauge or candy thermometer and bring it up to 220° F., or, without thermometer, reduce bulk to one-seventh of original volume. To see whether it is cooked enough, test as you would test sirup or candy, by pouring a little of it into cold water. If boiled enough it should have the consistency of maple sirup. It should not be cooked long enough to harden like candy when tested.

Slow Cooling Important

When the test shows that the sirup has been cooked enough, pour it into fruit jars, pitchers, or other receptacles, and allow it to cool slowly. Slow cooling is important, as otherwise the suspended matter will not settle properly and the sirup will be cloudy. A good way to insure slow cooling is to stand the vessels full of sirup in a bucket or a wash boiler of hot water. They may also be placed in a fireless cooker. The white sediment which settles out during cooling is called "malate of lime" and is a harmless compound of lime with the natural acid of the apple.

When the sirup is cooled, it should be stored in fruit jars or bottles. Place the rubber cap or cork in position and tighten. Then place the bottles or cans of sirup in hot water and sterilize for 12 minutes in hot-water or wash-boiler outfit, 10 minutes in water-seal outfit, 8 minutes in steam-pressure outfit under 5 pounds of steam, or 5 minutes in aluminum pressure cooker under 15 pounds of pressure.

A Palatable Product

Apple sirup made by this method is a very palatable and high-grade product. It has a flavor much like the thick sirup or jelly which is often formed when apples are baked with a little sugar. As shown by experiments made in the United States Department of Agriculture, this apple sirup can be used in cooking with good results, as well as for table purposes.

INTEREST IN CLEAN HERDS SHOWN AT TB CONFERENCE

(*Continued from page 1*)

the conference, experimental testing by the three methods was conducted at the Union Stockyards.

Accredited-Herd Plan Indorsed

Delegates from all parts of the country reported keen interest in their localities in the so-called accredited-herd plan, under which the Federal and State authorities grant a certificate to owners of herds found to be free from tuberculosis and which are maintained in a prescribed manner. The principle of the plan was warmly indorsed as a constructive means of tuberculosis eradication, and the conference favored its continuance along present lines or with additional requirements that will increase its effectiveness. A topic receiving special emphasis was the need for painstaking and thorough disinfection of premises where disease has been found, followed by continuous attention to sanitation of buildings and surroundings.

Tuberculosis in Swine

Eradicating tuberculosis from cattle will practically solve the problem of controlling the disease among swine. That was the opinion of veterinary experts experienced in the handling and post mortem examination of swine received at the principal market centers. By means of a simple and practical marker, hogs may be tattoed with distinguishing letters and figures, and when disease is found by post mortem examination, the identity of such animals is known. With a simple system of records it is thus possible to trace a shipment to the farm from which it came and stamp out infectious diseases at their source. The evidence submitted showed that swine become infected with tuberculosis, principally from cattle, either by following them in feed lots or pastures, by receiving infected dairy by-products or by eating tuberculous carcasses. In addition there are numerous other but less common methods by which swine contract tuberculosis.

Official Insist on Thorough Work

The discussions revealed a wide difference of conditions and problems, many of them intricate, but there was unanimous agreement on the main topic to eradicate tuberculosis from live stock throughout the United States and to do it at the earliest possible time. Farmers and stockmen of the country virtually have set a pace in their demands for testing that is faster than was anticipated a few years ago, but the live-stock sanitary officials are not to be outdone. The Federal Bureau of Animal Industry is now producing about three times as much tuberculin as a year ago, and it is being distributed free to Federal, State, county, and municipal officials. Those in charge of the work in different States recognized that the present progress is but a beginning, and to avoid confusion there must be uniform policies and methods. They stressed also the importance of doing the work thoroughly and well, so there will be no reaction and loss of confidence.

Live-stock owners may be of great immediate assistance in the work, with much benefit to themselves, if they will isolate all animals brought into their herds until such animals are definitely known to be healthy, and also will maintain clean and sanitary surroundings. The gradual increase in the number of live stock in the United States and also in the shipment and exchange of animals make disease control and eradication a problem demanding the closest cooperation among live-stock owners, sanitary officials, and the public in general. The regulations which have been found necessary are directed, the conference showed, at a small minority of conscienceless people who, if unchecked, would spread disease all over the country. In addition many of the provisions regarding handling of live stock in interstate traffic are a check on carelessness or indifference to public welfare. It is believed that the great majority of live-stock men, knowing these facts, will support regulations which are aimed to correct the conditions.

The keeping of farm animals furnishes profitable work during the winter, when other work is less pressing and when they require most care. This distributes remunerative labor throughout the year more evenly than otherwise would be possible, says the United States Department of Agriculture.

War Savings Stamps spread happiness to millions—get your share.

Southern Gardens Will Furnish Greens To Northern Markets During Winter

Certain sections of the South, especially those along the Atlantic Coast, send large quantities of cabbage, spinach, and other crops of this character to the northern markets during the winter and early spring months. At certain seasons of the year these same sections of the country receive from the northern growers considerable quantities of cabbage. This year there is a prospect that the northern supply of cabbage will be extremely short, and United States Department of Agriculture specialists advise that the people of the South plant plenty of crops to provide them with a supply of greens for winter use.

Turnips are the old stand-by, but people get tired of eating turnip greens continually and a change is desirable. Perhaps the best alternate crop is spinach. This requires a rich, deep, loamy, well-prepared soil with plenty of fertilizer to insure a quick and tender growth. If planted late in September or early in October, the spinach will be ready for cutting in November and early December. If planted in late October and November, it will go through the winter and be ready for use early in the springtime.

Spinach that is planted for fall use should be given plenty of readily available fertilizer so that it will make a rapid growth. Where it is to be carried over winter in the ground, very little fertilizer should be applied in the fall, but a liberal top-dressing should be made about the time that the spinach starts growing in midwinter. This may be sown broadcast over the plants and worked in with a hoe or some similar tool. The usual method of growing spinach is to plow the land in beds about 6 or 7 feet in width, then drill the rows of spinach 8 or 9 inches apart lengthwise of these beds. This arrangement provides drainage, the furrows between the beds carrying off the surplus water during the rainy season.

Kale, especially the moss-curled varieties, make excellent greens during the winter. It is easy to grow, and if seeded in October will be ready for use from February to April. Like spinach, it wants plenty of plant food, and it is best to apply a portion of the fertilizer at the time the land is being prepared, and then add a side-dressing along in January when the weather becomes warm. Kale seed is very much like cabbage seed and may be drilled in rows 24 to 30 inches apart and later thinned to 6 or 8 inches between the plants in the row. Kale does not have quite so delicate a flavor as spinach, but provides variety and makes an abundance of greens that can be used in the same manner as cabbage.

Now is the time to get a winter garden started, and if the work is properly attended to an abundance of green food will be provided, thus leaving the cabbage crop of the North available to those who can not produce anything during the winter.

SURFACE IRRIGATION FOUND EFFECTIVE AND LESS COSTLY

Probably there never was greater interest in various forms of irrigation than at present. Three methods are popular in sections of the Eastern States where conditions justify the artificial application of water to crops. They are spraying, subirrigation, and surface irrigation. But the forehanded farmer who is making plans for his spring work hesitates to undertake new spray irrigation or subirrigation projects because he is well aware of the expense with prices at their present level. It is timely, therefore, to suggest the benefits of surface irrigation which does not involve so heavy an outlay of money.

Two methods, furrow irrigation and flooding, are employed. Both are extensively used in arid sections of the country, and their adaptation to eastern conditions is not difficult. As its name implies, furrow irrigation is merely the running of water down furrows between rows of plants, while irrigation by flooding is the spreading of water over fields, usually those in small grains, alfalfa or grasses. Common field crops are not often irrigated in the East, yet in occasional instances cotton, corn, and potatoes have been treated in this way with profit; likewise fruit trees are benefited by irrigation in many sections. An example of this is the citrus groves of Florida.

Many farms are adapted to a combination of spray and furrow irrigating systems, the former to irrigate seed potatoes and small patches of garden truck, while the latter may be used for crops planted in rows. When a combination of this sort is adopted the crops under spray usually are those on rolling or hilly lands where it is not easy to irrigate by furrows. Where the lay of the land is favorable the comparative cheapness of the furrow method recommends it above the more expensive spray method. In most instances where the furrow method is used the crops are planted in rows far enough apart to permit of cultivation by a horse-drawn implement.

The Department of Agriculture has for distribution Bulletin 899 entitled "Surface Irrigation for Eastern Farms," which contains valuable information for the farmer interested in surface irrigation. It treats in a practical way the problem of obtaining a water supply, how to convey the water to the land, and the different types of pumps and other equipment necessary to make the system practical. There are also valuable suggestions regarding the methods of applying the water to the crops.

POULTRY CIRCULARS AVAILABLE

Eight of the twelve new circulars relating to boys' and girls' poultry-club work are now available for distribution, while the other four in the series will soon be ready. The available publications, which are particularly adapted for boys' and girls' club work, but also will prove useful to mature poultry keepers, are: No. 13, Brood Coops and Appliances; No. 14, Care of Baby Chicks; No. 15, Preserving Eggs; No. 16, Lice, Mites, and Cleanliness; No. 17, Management of Growing Chicks; No. 18, Culling for Eggs and Market; No. 19, Poultry Houses; and No. 20, Common Poultry Diseases.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended October 18, 1919:

Good Seed Potatoes and How to Produce Them. Farmers' Bulletin 533.

Mites and Lice on Poultry. Farmers' Bulletin 801. (Revised.)

Fruit Growing on the Northern Great Plains. Department Circular 58.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

The breeding of animals plays an important part in producing a carcass of high quality, says the United States Department of Agriculture. Selection, long-continued care, and intelligent feeding will produce meat of desirable quality.

The cheapest meat a farmer can use is the product of his own farm. This is also true of the suburban or town farmer who fattens one or two hogs on kitchen and truck-garden wastes, says the United States Department of Agriculture.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Offer Free Use of Good Sires.

As practical evidence of their interest in the "Better Sires—Better Stock" campaign, which is gaining recruits rapidly in a majority of the States, the owners of a large stock farm in Florida have written the Bureau of Animal Industry of the United States Department of Agriculture that the Holstein bull and Hampshire boar owned by them have been made free community sires. The services of a Duroc boar will likewise be made free as soon as he is old enough. All are fine animals, with pedigrees.

"We give the services of these animals free," write the owners, "because this region is cursed with scrub sires. They roam everywhere at will and are a great menace to those keeping purebred stock. Please tell us what to do to have our farms enrolled in your campaign and our sires recorded."

The offer of the bull is made with the desire to improve the milking qualities of cows. The owners of the bull specify that all cows brought for service must be tick-free. A fee is charged for service to registered Holstein cows.

How's Weather for Flying?

Some day it may be a common thing for Mr. American Hustleman and his friends who are planning a recreational dash through the air to arrange with the Weather Bureau for daily reports, so that the flight can be undertaken without risk of running into bad weather, but to date weather reports for aerial touring parties are a relatively new thing. Just now the Government is interested in such an expedition which started from Portland, Me., September 27, and, if all goes well, will end at Pensacola, Fla., in December, after visiting more than a score of principal cities on the Atlantic coast and in the Ohio and Mississippi valleys. The flying boat "NC-4" is the craft taking this journey, the object of which is to secure recruits for the United States Navy. When the flying boat stops at regular Weather Bureau stations the lieutenant in charge of the expedition has the weather maps and forecasts placed at his disposal by local Weather Bureau representatives. At other points the complete morning and afternoon reports are telegraphed from convenient weather bureau stations to the fliers.

The Weather Bureau also furnished flying weather forecasts to the parties participating in the transcontinental reliability race that started simultaneously on October 8 from San Francisco and Mineola, L. I. Forecasts of the expected conditions were telegraphed daily morning and evening to all official stopping points on the route, 23 in number.

Saving Sweet Corn Seed.

The best way to secure home-grown sweet corn seed, according to United States Department of Agriculture specialists, is to allow it to ripen on the plant, and, since a single ear will be seed enough for a small garden, it is quite practicable to do this. Select the best and earliest ears by stripping down the husks to examine the grain and to remove any worms that may be found, and then carefully fold them back and hold them in place by an elastic band or a string. Allow these ears to ripen thoroughly on the stalk. In the North it is often better to pull and hang the plant where there will be no danger from moisture, frost, or even chilling until the seed is thoroughly dry. All the ripe ears remaining at the end of the season in any crop of sweet corn should be harvested and saved. The best ears will make fairly good seed, and nearly everyone knows the enjoyment in parched sweet corn.

Sweet corn spoils much more quickly than field corn, and can not readily be cured in large shocks, but should be husked from the stalk and spread thinly on staging to cure. A convenient way of storing sweet corn is on the ear.

Keep Community Buildings.

One result of neighborhood and community activity during the war has been the increasing desire in many regions to make this work permanent. To this end certain neighborhoods are preparing to acquire buildings originally erected for other purposes and transform them into community centers. Other towns which have temporarily maintained headquarters for soldiers camping in their vicinity propose to make these headquarters permanent and broaden the scope of their service to the benefit of all. An interesting feature of the movement is the construction of community houses as memorials to the soldiers who died in the Great War. Many of the community buildings are designed for the use of farmers and their families on business visits to the cities, according to information reaching the United States Department of Agriculture.

Raffle Boosts Purebred Cause.

A novel form of raffle has been employed in Lincoln County, Wis., by the members of a newly organized Holstein cattle association to promote the cause of better sires. With the profit the association derived from the sale of 32 head of cattle which it brought in from the southern part of the State, and from the sale of several other animals secured locally, the association bought eight purebred bull calves. The method by which these calves were distributed resembled a raffle. However, no fee was exacted of "chance" takers, but instead all were required to join the association. In every instance the bulls went to men who had not had purebred bulls previously or who had manifested little interest in the purebred-stock movement.

Storage for Garden Products.

One of these nights not far distant there will be a frost. That means, does it not, that huge baskets of pumpkins, squash, beets, onions, tomatoes, apples, and other vegetables and fruit grown in your garden and orchard must be brought in and saved for winter use?

Before that time the question of storage must be settled. If you have never had them to store before or did not have success in the methods used last year, or want to know more about the subject for general information, send for a copy of "Home Storing of Vegetables," Farmers' Bulletin 879, United States Department of Agriculture.

Different types of inexpensive and reliable storage places, the room in the basement of the dwelling, the outdoor storage cellar or cave, the bank or pit, are described in detail. The saving in money and the additional variety in your winter menus will more than pay you for spending time in preparation for good, careful storage.

Plebiscite on Stock Breeds.

From the vicinity of Fort Worth, Tex., has come the proposal of a large stock owner that the people of his county be asked to determine by referendum their choice of breed for horses, dairy and

beef cattle, hogs, chickens, turkeys, and ducks. According to the plan outlined such a plebiscite would be held after the merits of the various breeds had been carefully studied and discussed by the people of the entire country.

Whether or not the stock raisers of the region will find it practical to carry out the suggestion, the proposal is evidence of the spreading interest in the "Better Sires—Better Stock" campaign and calls attention to the need of clearer understanding of the merits of various breeds of animals. Wherever a section of the country has been able to specialize in the raising of a certain breed it has worked to the mutual advantages of all stock owners concerned. This is one of the points which prompted the suggestion of the Texas stock raiser.

Winter Work Against Barberry.

Summer work has been completed by the United States Department of Agriculture on the barberry survey in relation to black stem rust of wheat, and overwintering stations—where the winter phase of the disease will be further investigated—have been or soon will be established at various places. The country is divided into seven districts with headquarters as follows:

Northeastern district, Department of Plant Pathology, Cornell University, Ithaca, N. Y.; southeastern district, Department of Plant Pathology, Alabama Polytechnic Institute, Auburn, Ala.; north central district east, Department of Botany, Agricultural College, East Lansing, Mich.; north central district west, Division of Plant Pathology, College of Agriculture, University Farm, St. Paul, Minn.; south central district, Department of Botany, University of Oklahoma, Norman, Okla.; southwest district, Department of Botany, University of Arizona, Tucson, Ariz.; northwest district, Department of Botany, Agricultural College, Corvallis, Oreg.

Farming Preserved in Pictures.

Some crank on literary speculation once said that if every copy of the Bible and every copy of Shakespeare in existence were destroyed, it would be possible the next day to reproduce them, letter perfect, from the memory of men and women. Probably he would depend almost wholly on the "mental storage" of ministers and actors. Following out the analogy, it is hardly too much to say that if all knowledge of agriculture were blotted out of the minds of men to-morrow, it would be possible to reconstruct good agriculture from the pictures in the possession of the United States Department of Agriculture.

The Section of Illustrations turned out, during the last fiscal year, 181,000 pieces of photography. The subjects ranged from organisms so small that they had to be photographed through a high-power microscope to fumigation tanks large enough to admit a whole train of freight cars at once, from a fever tick fastened to the hide of a cow to magnificent stretches of forest and pasture caught from the tops of high mountains. And the Section of Illustrations has been at work for 21 years. It has not confined itself to photography, either. It works with the pencil and the crayon almost as much as with the camera. It is not doing all this work, let it be understood, on the far call of rebuilding agriculture if it should be destroyed, but for the purpose of instructing the public, day by day, in the art of better farming.

All these pictures are used in educational work of some kind. They are printed in bulletins, on leaflets, in newspapers; are shown directly to farmers and farmers' wives by county agents, home-demonstration agents, and others; are displayed at fairs and other expositions—in one way or another are brought to the attention of the people the country over who are interested in growing more and better food for the consumers of the country and in living more comfortably and getting more out of life for themselves while they are doing it.

War on Take-All Continues.

Eradication of the take-all disease of wheat and other small grains, which was first discovered in the United States last spring, claims close attention from Federal and State agricultural authorities. When the take-all and flag smut conference was held in Washington at thrashing time, the diseases were thought to exist only in a few counties in Illinois and Indiana. Two other infested areas suspected of being take-all have since been discovered, one near Roanoke, Va., and the other in Mason County, Wash. Necessary control measures have been inaugurated. Field experiments on two farms in Madison County, Ill., one of the infested areas, have been undertaken to determine how long soil infestation will continue, the efficacy of different rotations in controlling the disease, the degree of immunity and susceptibility of different crops and crop varieties, the effect of fertilizers on development of the disease, and other related facts. A comprehensive series of milling and baking experiments is being conducted in Washington to determine the effect of formaldehyde disinfection on milling quality and baking value. The Illinois and Indiana Experiment Stations are cooperating in rotation and similar experiments.

Japanese Studies Quarantines.

Dr. S. I. Kuwana, director of the Imperial Plant Quarantine Station and entomologist of the Imperial Agricultural Experiment Station of Japan, has been spending some time at the United States Department of Agriculture familiarizing himself with the plant-quarantine work of this country and with methods of insect control practiced by the department. Inasmuch as many of the insect pests against which the United States Department of Agriculture has to guard, under the Federal plant-quarantine act, are native to Japan, and as commerce between the United States and Japan may increase steadily for years to come, it is expected that the results of Dr. Kuwana's visit to this country will be beneficial both to Japan and to the United States. He is not confining his investigations to official work at Washington, but has visited or will visit every section of the United States, conferring with experiment station directors and other scientists.

Dr. Kuwana spent nine years as a student at Cornell and Leland Stanford Universities. It has been 19 years since he returned to his own country to take up his life work as an entomologist.

Insect Powders Adulterated.

Recent investigations by the United States Department of Agriculture show that insect powders are often adulterated with powdered daisy flowers. However, the adulteration can ordinarily be determined definitely by microscopic examination. The presence of daisy flowers is indicated by fragments of the fruit tissues. Ordinarily the "ox-eye daisy," "field daisy," "white weed" or "marguerite," as it is often called, is used as an adulterant. Mountaineers in some States gather and dry these weeds and deliver them to country storekeepers in exchange for merchandise. In turn, the storekeeper passes on the daisy flowers to drug dealers, who use the material in insect powders in order to cheapen them. This form of adulteration is carried on to a marked extent at present, it is stated.

Young stock require considerable care and attention, but usually at a season when the farmer has little else to do. The farmer can well afford to do extra work for them in the winter, as these same animals will assist in harvesting his crops later, says the United States Department of Agriculture.

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HEALTH CONSIDERATIONS NOT SUFFICIENT TO ROUSE CITIES

Do Not Realize Importance of Clean Meat from Sound Animals

Chief of Bureau of Animal Industry Makes Plea for Adequate System of Inspection of Slaughterhouses by Cities

Health considerations alone have failed to rouse American cities to the importance of clean meat from sound animals and to the importance of having local meat establishments inspected. This is what was told the American Public Health Association this morning by Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the United States Department of Agriculture.

"It is not within my authority to say what shall be done," he continued, "but this much is certain: The inspection is needed, as the facts show and as all who are familiar with average slaughterhouse conditions will quickly admit. Their interest in health alone fails to get results—possibly some additional factor may be found and used as a means of obtaining and holding the necessary support."

What Meat Inspection Has Done

Dr. Mohler then told of what has been accomplished by Federal meat inspection in the establishments it reaches.

"The scope and purpose of Federal meat inspection," he said, "are to place the Federal mark of approval upon all meats and products which competent examination shows to be sound, healthful, and fit for food, and to condemn and destroy those which are found to be dangerous, unsound, or otherwise unfit for such use. The inspection also includes supervision of the establishments with respect to sanitation, construction, and suitable methods of handling all meats and their products. Furthermore, the consumer of meats is protected against the use of harmful dyes and chemicals and against false or misleading names or statements on labels. In short, the meat-inspection service seeks to protect the public health and the rights of consumers and to do this without infringing upon the just rights of the producer and without waste of the Nation's meat supply."

Comparatively few persons, Dr. Mohler said, are familiar with the manner in which Federal meat inspection does protect the public health. Inspection is maintained, he continued, at 825 establishments in 230 cities. About 2,600 inspectors are regularly employed. They are either graduate veterinarians or lay inspectors who, through experience and training, have acquired a high degree of technical knowledge and skill.

He explained that the slaughterhouses in which about one-third of the meat of the United States is prepared are not federally inspected, because they sell their entire output within the State where the slaughterhouse is located and the Federal Government has no authority under the Constitution to regulate them in any way. All the meat shipped across State lines or exported is inspected by the Government.

States or Cities Must Act

"If the entire meat food supply of the country is to be properly inspected," he continued, "it will devolve upon the several States or municipalities to cover the field to which Federal inspection can not be extended."

Some cities, he pointed out, do maintain such inspection. The need for State and municipal meat inspection laws is shown, he said, by the number of unsound animals that are condemned by the Federal inspectors every year—221,245 animals on the post-mortem inspection alone last year. On the basis alone of the number of animals slaughtered in Federal inspected and in non-inspected slaughterhouses, that would mean that 106,122 unfit animals were used as human food from uninspected slaughterhouses last year, but the actual number probably greatly exceeded that figure, as the tendency would naturally be to send diseased animals to slaughterhouses where there is known to be no

(*Continued on page 11.*)

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USE OF SACCHARIN IN FOOD MEANS MENACE TO HEALTH

Propaganda to Create Demand Is Effort to Capitalize Public Ignorance

Chief of Bureau of Chemistry Says Saccharin Is Harmful Drug and Possesses No Food Value—Prosecution Pending

The use of saccharin in place of sugar, which many housewives are being tempted to resort to in these days of sugar shortage, may involve menace to the health, and therefore is to be condemned, according to specialists in the Bureau of Chemistry of the United States Department of Agriculture. In most cases housewives have turned to this substance in their emergency because they do not understand that saccharin is a harmful drug; to consider it a harmless healthful substitute for sugar is absolutely false, say the Government's chemists.

The Department of Agriculture has received a number of inquiries in the last few days concerning the properties of saccharin and in every case it has answered by condemning the use of the drug for cooking purposes. It calls attention to the fact that the Bureau of Chemistry is now aiding in the prosecution of a large St. Louis concern which makes saccharin, for violation of the Food and Drugs Act.

Public Warned Against Use of Saccharin

"The attempt to exploit the shortage of sugar and create a demand for saccharin for use in place of sugar endeavors to capitalize the public's lack of knowledge of the properties of this substance, and the Bureau of Chemistry feels called upon to reiterate the warnings which it has given repeatedly in its publications," said Carl L. Alsberg, chief of the bureau, who cites his testimony before a subcommittee of the Senate's Committee on Agriculture a few days ago, on this same subject, as showing the extent of the present menace due to the public's not being properly informed.

"The department regards the use of saccharin in food as a menace to health,"

says Dr. Alsberg. "This is the position of the department to-day as it was in 1911, when official decisions were rendered. There has been no scientific evidence adduced on the basis of which the department would be justified in any manner in altering its position.

"The department regards food to which saccharin has been added as adulterated, since a substance has been added to the food which may render it deleterious to health. It also regards it as adulterated in that a substance of no food value whatever has been substituted for sugar, a very valuable food. The department has now pending a criminal prosecution against one concern for the shipment interstate of a parcel of saccharin labeled as harmless. Furthermore, a majority of the States prohibit the use of saccharin in food, either by statute or by regulation."

FORESTRY OPPORTUNITIES FOR SOUTHEASTERN IOWA

A representative of the Forest Service who recently visited Iowa calls attention to the fact that there is still a considerable area of timberlands in the State. The value of these lands has been only partially appreciated, according to the forester. He reminded Iowa farmers that three-quarters of the Nation's timberland is privately owned, while but one-quarter is Government owned, and consequently it is in the privately owned forests, as well as the others, that conservation must be practiced. To avoid an increasingly serious timber shortage, it is essential that all of these lands be properly handled to produce timber and other forest products.

Planting of Quick-Growing Trees Urged

Because of the present high price of lumber the timber resources of the State have assumed an importance entirely unlooked for a few years ago. The representative of the Forest Service declared that there is a good opportunity for farmers of southeastern Iowa, particularly, to make use of their nonagricultural lands and the islands of the Mississippi by planting quick-growing trees, such as cottonwood. He also urged farmers to use small corners of their farms for this purpose.

Cottonwood is used for rough lumber and paper pulp where the market is near by, and for excelsior and fence posts when treated with a preservative. A ready market is nearly always found for a cheap wood that has as many uses as cottonwood.

Beet-Top Silage A Hay Substitute— Growers Urged to Make Full Use of It

Stock growers in the inter-mountain districts of the West having a sufficient quantity of sugar beet tops can reduce their hay requirements by approximately one-half by using their beet tops for the production of silage, is the announcement made by the United States Department of Agriculture. This information is particularly valuable at this time because of the present hay shortage. When this silage is substituted for a portion of the hay normally fed, it is found that beef and mutton gains continue on a normal basis. Many beet growers contend that beet tops are worth from $10 to $12 an acre when grazed. Where the beet grower does not have stock to utilize the pasturage it is common to sell the tops to stockmen at from $3 to $6 per acre, or even higher. In the absence of complete data from well-defined experiments in feeding beet-top silage, the department cites the experience of several careful feeders as indicating the genuine value of this by-product of the sugar beet field. One large cattle grower reports that the shipping "shrink" on cattle fed and "finished" by using beet-top silage as a generous part of the ration, is not greater than the "shrink" commonly had with cattle that are fed and finished with grain, alfalfa, and concentrates.

Persons who have not used beet-top silage are cautioned to feed it lightly at the start. It is also important that moldy silage found on or near the surface or sides of the silo be carefully removed and destroyed, as such food is even more dangerous than moldy hay or straw.

Harvesting and Preparing the Material

The essentials involved in making good beet-top silage are substantially those necessary to making good corn silage. The mass should be packed thoroughly to exclude the air and then sealed air-tight. It is not necessary to run the tops and crowns through the silage cutter, though some feeders prefer to do so to avoid the possibility of choking animals on the crowns.

The average cost of gathering the tops and piling, packing, and finishing the silo is approximately $1 per ton. As a preliminary step it is particularly important that the tops be gathered and put into small piles promptly after the beets are topped, and that the dirt and sand be removed. This can be easily done by shaking the tops well while the leaves are fresh.

A structure commonly used for putting up corn silage is entirely suited for beet-top silage. Because the beet tops pack very densely the structure may sometimes crack under the pressure and thus allow air to enter. However, a silo well built is reasonably safe. If one does not have an ordinary silo, cash outlay is not necessary to make beet-top silage, for a natural-earth silo can be used quite satisfactorily. The earth pit which can be quickly made by the use of a team or scraper should be deep and narrow instead of wide and shallow. Under certain conditions concrete side retaining walls are advisable for such storage places, but ordinarily the earth sides and bottom covered with straw have been found satisfactory. When the natural-earth silo is used special care is necessary in packing, and, after filling, the top should be covered with beet pulp or earth to exclude the air.

An excellent quality of silage can be made by merely stacking the tops and crowns entirely above the earth and then packing them thoroughly. Of course the spoilage is greater in such a case than when the structure or pit silo is used. Many stock raisers lay away a supply of sugar-beet pulp for winter feeding.

Pulp, another by-product, is the fibrous mass that remains after the saccharin matter has been removed from the sliced beets commonly called "cossetts." The best way for the grower to store a portion of this pulp for winter feeding is to spread it on the top of the beet tops in the silo. This effectually seals the silo and prevents the silage mass from freezing. At the same time the heat from the silage warms the pulp, thereby hastening its curing and rendering the pulp as well as the silage excellent for stock feeding.

Suggestions for Proper Feeding

Silage is not a balanced ration, but, being a carbohydrate feed, it goes well with alfalfa hay which is rich in protein. Fermentation in the silo corrects the cathartic salts in the beet tops and crowns. The best feeding practices show that the beet-top silage reduces hay requirements one-half in feeding for beef or mutton or milk production.

Beet tops will increase the flow of milk with ewes at lambing time. It is best to start feeding only about 1 pound per head per day and gradually to increase to about 3 pounds per day.

From the standpoint of costs it is interesting to note that the by-products of the sugar-beet crop, when properly handled and fed, have a value equal to the entire cost of the so-called "hand labor" required in producing the beet crop. If properly conducted, the feedings of the by-products will yield a net profit equal to about one-half of the net profits usually had in growing and marketing the beets themselves.

FOSTER MOTHERS ON PARADE FIX FASHIONS AT CHICAGO

Elite of Cow Society Admired at National Dairy Show

Ready to Produce Like Geysers, But Insist on Eating Like Whales—Exhibit Showing Feed and Milk Is Popular

Dolled up in all the finery known to cowdom, the veritable fashion plate of the animal kingdom, Bossie and her mates have been on parade recently at the Union Stock Yards, Chicago, where the National Dairy Show was held. The autoists have a motor show, the florists have flower shows, the tailors have style shows, and it is only fitting that Bossie, the foster mother of the human race, should annually stand public inspection and graciously receive plaudits and acclaim and honorable decoration for her efficient, consistent, persistent, and insistent efforts to furnish an abundance of nutritious and sanitary food for mankind.

Bossie is always at her best at the dairy show, and after she has been manicured, massaged, shampooed, clipped, curried, and groomed to the sleekness of a race horse, it is small wonder that she struts like a peacock as she comes from the judging ring with the blue ribbon, the croix de guerre of the dairy matrons, attached to her halter. She may be a $100,000 beauty with an elaborate pedigree, or she may be just an average purebred cow, previously not listed on the dairy scroll of fame. The spectators honor her just the same and in some instances become so boisterous as to cast their hats skyward in celebration of her victory.

Bossie's kitchen cupboard is a pantry which belies the old nursery rhyme, as to-day it must be overflowing with the goodies of the cow world, if the old lady is to attend consistently to her knitting. Consumers who bemoan the rising grocery and meat prices and who lament that their families are so large, figure the task of keeping 10 or 20 cows happy, contented, and satisfied at grub time as colossal a job as tipping over the Pyramids with a crowbar, after they have visited the exhibit of the United States Department of Agriculture. There was pictured in life size the amount of feed that is required to keep Bossie geared for heavy production throughout the year. During a period of two years Uncle Sam kept one-year records on about 740 cows in northern Indiana, and the different amounts of feed in the dairy dietary as shown at the cow congress were grand averages of these investigations.

Uncle Sam imported one of the Porter County, Ind., grade Holstein cows to the dairy show to let the people see what kind of a critter it took to stow away the voluminous supply of feed. This cow with her two-weeks-old son, Johnny, traveled to Chicago luxuriously in a chartered motor, and at the dairy show she was daily the center of interest as she stood in stanchion and stall, with Johnny in a pen close by. In order that she might not get lonesome, her surroundings were made as rural as possible, and a year's supply of provender, including 7,276 pounds of silage in a silo 5 by 11 feet, 2,567 pounds of alfalfa hay in a stack, 734 pounds of corn fodder in the bundle, eight bales of straw weighing 720 pounds for bedding, 1,198 pounds of ground feed in sacks, a pile of 848 pounds of home-grown corn, and the use of nearly one and one-half acres of pasture for six months, this being represented by sodding with turf an area of the exhibit close at hand.

Plenty of Milk Even for Atlas

Even Atlas, exhausted from his strenuous efforts of holding up the earth, would have had to gorge himself to consume the huge bottle of milk, 4½ by 9 feet in size, containing 6,937 pounds, equivalent to 3,227 quarts, the production of the cow in one year. Yes, Bossie has some appetite, but do not forget that she has four stomachs and it takes a pile of chow to keep them all busy at once, so that she can chew her cud and ruminate at will, the pastime which all cows enjoy.

A chart was employed to show the amounts of feed which the average Indiana cow consumed; and how overhead charges, including interest, depreciation, taxes, and insurance on buildings, cattle, and equipment, as well as charges for supplies, repairs, medicine, veterinarian, and so on, cost $27.11 a year a cow. The outstanding value of this exhibit was to show the consumer how much it cost to keep one cow under farm conditions and how the income which the producer receives for his milk is distributed. Close study of cow costs and maintenance charges will convince the most obdurate objector against the price of milk that the farmer is not realizing more than his just due from its making and marketing.

The Hook for No-Account Bulls

Mongrel and scrub bulls devitalize dairying. Both Federal and State authorities have preached the doctrine of purebred sires strenuously, and as a result there are 78 cooperative bull associations in 27 different States. Their 2,978 members own 18,244 cows, and an average of five purebred bulls belong to each association. These bulls are used in breeding work cooperatively by the members of each club, being maintained at central points in each district. This permits the members to secure the services of better bulls at a lower cost than they could under private ownership. For example, before organization of the Rolan (Iowa) Cooperative Bull Association it cost each farmer $29.81 a year for bull charges, the average value of the misfit sires which were used being $89.44. After the bull club got going it cost only $7.50 a year for bull costs, while the average value of each pedigreed purebred bull in use was $240. Another of Uncle Sam's exhibits at the dairy show told this story.

Billy of Barrington's work in improving cow stuff around Windsor, Md., is interesting in this connection. Six daughters of this bull in one year produced an average each of 1,695 pounds more milk and 95 pounds more butter fat than did their dams, as a result of using a well-bred bull in the mating. The cow-testing work of the United States Department of Agriculture also is closely related to bull improvement, as the scales and the Babcock tester are the Sherlock Holmes and Dr. Watson of the dairy world. They identify the drones from the workers, the shirkers from those that toil. A poor cow is like a broken-down motor, as she consumes plenty of fuel yet produces little energy or food. Hence the low-producing cows are parasitic on general herd profits and must be located and eliminated. This is the official business of the cow-testing association, and results described at the dairy show were to the effect that the 38,532 cows in 110 cow-testing associations, where records were tabulated for the period from 1910 to 1918, produced an average of 5,936 pounds of milk, as compared with about 4,000 pounds for the average American dairy cow, and 246 pounds of fat for the tested cows, against 160 pounds of fat for the average dairy cow of the country. In the case of the tested cows, the average value of the butter fat was 43 cents a pound, or an income from each cow of $105.72.

Have One on Uncle Sam and Drink Hearty

One of the most popular booths was that where Federal dairy experts served, free of charge, novel and thirst-appeasing drinks, such as koumiss, buttermilk lemonade, Bulgarian buttermilk, and

buttermilk, which were prepared according to Uncle Sam's methods of mixing. The purpose was to popularize these beverages and show dealers how to make them properly.

The big dairy exposition also had its dramatic side, as a pretty play, "Milk Fairies," was staged by school children, the sketch carrying the moral about the value of milk as the banner food for children. Extensive displays showing the food value of milk were also there in number, as well as model menus and meals for school children, in which milk was emphasized as an outstanding nutrient.

There With the Wall Street Touch, Too

The visitor to the exhibit of the Federal Bureau of Markets could well imagine himself just a step from Wall Street, as the staccato notes of the telegraph and ticker, bringing news of cheese and butter receipts, prices, and market conditions from Philadelphia, Boston, New York, Minneapolis, and points in Wisconsin, representative of the market-news service which Uncle Sam provides for dairy producers and dealers, was a regular headline attraction.

A member of the Bureau of Markets established a new world's record during the time when Cincinnati was annexing a similar title on the baseball field. In preparing a huge map showing the distribution of creameries, cheese factories, ice-cream plants, and other branches of the dairying industry throughout the country, it was necessary that this man stick 10,200 small pins in their respective positions on the map. It took him 30 hours to finish the job, and he now is ready for challenges if anyone wants to dispute his right to the world's pin-sticking championship.

Heretofore an enormous waste of fuel has been characteristic of many dairy plants. Uncle Sam recommends the harnessing of this waste power in pasteurizing milk and cream, dairy utensils and the like, at a pronounced saving in fuel. An exhibit showing how this can be accomplished was as attractive as a magnet to dairy-plant owners who visited the national cow show.

War Booms Our Export Dairy Business

Previous to the war in 1914, the United States exported only 700,000,000 pounds of milk in the form of butter, cheese, and condensed milk to foreign lands. During the war the foreign demands on American dairy herds were intensified, so that during 1919 this country shipped out 620,000,000 pounds of milk in the form of butter, 160,000,000 pounds of milk in the form of cheese, and 1,770,000,000 pounds of milk as condensed milk, making a total exportage of 2,550,000,000 pounds of milk in the form of dairy products. In this instance the dairy products are reduced for comparison's sake to pounds of milk. This information also formed the basis of another educational display at the exposition where Bossie reigned supreme.

Here is food for thought for consumers generally throughout the country at large. Reports of the Federal Bureau of Markets as offered at the dairy show were that retail prices for milk of exactly the same grade range from 12 to 25 cents a quart, while the corresponding distribution charges vary from 4 to 10 cents a quart. In sections where the distribution costs are excessive, it is up to the consumers to assist the dairy industry to right this condition.

Generally speaking, high prices attend small distribution. If buttermilk is dispensed at soda fountains at the same price as whole milk, but little of the former material will be sold. Similarly, where cottage cheese retails at from 30 to 35 cents a pound, consumers will substitute cheaper foods. The bulk handling of cottage cheese and buttermilk obviates these difficulties, according to Uncle Sam's say-so.

Tuberculosis Destined for Banishment

Tuberculosis, the cattle scourge which has often played havoc with dairying in various sections of the country, is on the slate for banishment. The United States Department of Agriculture, cooperating with the various States, accredits herds which have undergone a series of tests and have been found free from tuberculosis. The last official list contains the names of 782 accredited herds in the country. These herds include 12,082 purebred and 6,939 grade animals. Furthermore, there are 6,536 herds which have been once tested without reactors, inclusive of 39,558 purebred and 57,685 grades. Virginia leads as the pacemaker in sweeping her borders clean of tuberculosis, there being 196 accredited herds, and 486 additional herds once tested, in the Old Dominion. The accreditization plan is of great advertising value to the individual dairyman and breeder who can capitalize the fact that his herd is recognized by Uncle Sam as free of tuberculosis.

Swat the Scrub Sire

The Federal Department of Agriculture, acting in conjunction with State agricultural colleges, inaugurated a "Better sires-better stock" campaign on October 1. Its purpose is to replace the mongrel, misfit, miscellaneous males in the live-stock world with sires of good quality and breeding. In this way costs of production should be decreased, as animals of superior quality produce more and better meat, milk, wool, or hide at less cost than do their inferior kith and kin. Each owner of one or more horses, cattle, sheep, hogs, poultry, goats, or asses who shows conclusively that he uses none but purebred sires in his breeding operations will be granted an official emblem or certificate by Uncle Sam recognizing this fact. Thirty-four States, as well as the District of Columbia, have already enrolled to aid the Government in the fight for better live stock, and it is anticipated that the movement will be countrywide as soon as the remaining States have opportunity to adopt plans of action in this regard.

Other Federal exhibits at the National Dairy Show included displays for forage crops, such as sorghum, Kafir, soy beans, cowpeas, and velvet beans, as well as samples of sunflower, oat and pea, Japanese cane, Japanese cane and velvet beans, and sorghum silage; educational exhibits of butter and cheese; methods of dairy-farm accounting and creamery-plant record keeping; showings of cheese produced in the southern mountainous sections isolated from railroads and equipped with poor highways; as well as shows of farm sterilizers, dairy houses, cooling tanks, and the like.

COOPERATIVE BUYING AIDS DRIVE

The manner in which cooperative buying can further the movement for better stock is illustrated by the activities of a live-stock association in northern Wisconsin. It purchased 32 head of fine cattle from another part of the State and also several head from its own vicinity. The association sold these animals individually to various stock raisers. The money netted by the transaction was used in further promotion of the purebred cause by purchasing 8 purebred bull calves. The calves were then distributed by lot among the members of the association. Thus the cooperative effort of the association has made possible raising the stock standards on the farms of practically the entire community, having brought into the county $16,000 worth of well-bred live stock.

In selecting hogs for butchering, health should have first consideration, says the United States Department of Agriculture. Even though the hog has been properly fed and carries a prime finish, the best quality of meat can not be obtained if the animal is unhealthy.

EXHAUSTION OF WOODLANDS IMMINENT IN THREE STATES

Conference Considers Lumber Future of Ohio, Indiana, and Illinois

Federal Officials Advocate Permanent Policy of Reforestation of Rougher Areas and Conservative Cutting

The importance of the Tri-State Forestry Conference, in Indianapolis October 22, and 23, to the people of Ohio, Indiana, and Illinois, is strikingly shown by facts that will be presented by officials of the Forest Service of the United States Department of Agriculture. These officials believe that unless adequate measures are adopted the woodlands of the three States will eventually be practically exhausted. The States will be urged to join in the national program of forest conservation that is being formulated to meet needs and conditions in every section of the country.

Lumber production in Ohio, Indiana, and Illinois has greatly declined in the last twenty years. In 1899 Indiana and Ohio each produced about a billion board feet of lumber. In 1918 each produced only about one-fourth of a billion board feet. In 1899 Illinois produced 375,000,000 board feet, but in 1918 the output had declined to 50,000,000 board feet. Much of the decrease is due to the fact that clearing for farming purposes was going on in 1899, but still it is not believed that the decrease in production should be as great as in the figures given.

Despite the inroads that have been made on the timber, each of the three States still has a large area—about 3,000,000 acres each—in farm woodlands. This represents between 10 and 15 per cent of the total farm area.

Comprehensive Program Needed

The logical thing to do, the Federal officials believe, is to adopt such measures, in connection with a comprehensive national program of forestry, that the remaining woodlands will not be used up without provision for their reproduction and perpetuation, and to restore some, at least, of the timber that stood on the lands in the hilly and rougher sections that now are bare. There are considerable areas of such lands, unsuited for farming or other uses, that can be well placed under timber, and thus become a part of the national effort that is just getting well under way with the aim of preventing the United States from experiencing exhaustion of important domestic supplies of lumber and pulp wood.

What has been done already in the formulation of the national program will be explained by Lieut. Col. Henry S. Graves, Chief of the United States Forest Service. Col. Graves has explained the plan, so far as it has been developed, at three interstate conferences in the eastern part of the country, and at a number of smaller conferences, and it has always met a favorable response. The vitally new part of this plan is that the Federal and State Governments shall join in measures to prevent privately owned woodlands from being wantonly wasted or destroyed. How the States can work with the Federal Government in this endeavor will be explained by J. G. Peters, chief of the State cooperation work of the Forest Service, who also plans to show the importance of the wood-using industries in Ohio, Indiana, and Illinois to the general prosperity of these States. For instance:

In Illinois 620,000 persons are employed in industries, 140,000 of them in wood-using industries; the capital invested in all industries is $2,000,000,000, and in wood-using industries $40,000,000; the value of products of all industries is $2,250,000,000, and of wood-using industries $320,000,000.

In Indiana 265,000 persons are employed in all industries, 70,000 in wood-using industries; capital in all industries $675,000,000, in wood-using industries $175,000,000; annual products of all industries are worth $730,000,000, of wood-using industries, $140,000,000.

In Ohio 600,000 persons are employed in industries, 90,000 in wood-using industries; capital in all industries, $1,675,000,000, in wood-using industries, $160,000,000; annual products of all industries are worth $1,785,000,000, of wood-using industries, $175,000,000.

Save Raw Materials

Of course much of the raw material for the wood-using industries comes from outside the States. That, in some measure, is due to the present state of exhaustion of the woodlands within the States. The condition will become more marked if measures are not taken for the preservation of the remaining woodlands. If a national program is not adopted, the wood-using industries eventually will find themselves far removed from the source of their raw materials. In the end, the wood-using industries would have to get their raw materials wholly from Canada or other foreign countries, or they would have to go out of business.

The conference in Indianapolis is regarded by the Federal officials as one of the most important in the series, at which views and suggestions will be exchanged in the formulation of the new national program. The governors of the three States, and men prominent in the forestry work of the States and the Nation, are scheduled for addresses.

Killing of Meadow Larks to Be Permitted in South Carolina

The Secretary of Agriculture has issued an order permitting the killing of meadow larks in South Carolina by persons owning or leasing farm land on which sprouting corn and oats are being grown, and also by members of such person's immediate family, and by his bona fide employees. Under the order meadow larks may be killed by shooting from half an hour before sunrise to sunset from November 1, 1919, to April 30, 1920, inclusive, in fields of sprouting corn and sprouting oats when the birds are committing, or are about to commit, serious injury to these sprouting grains. The order contains a restriction prohibiting the killing of the birds from artificial or natural blinds. Furthermore, it does not permit any of the birds killed to be wantonly wasted or destroyed, sold, or offered for sale, or shipped, transported, or carried in any manner, except that they may be carried by the person killing them to the residence on the lands of the owners or lessees, there to be used for food purposes by the persons authorized to kill them. Meadow larks killed within the period above mentioned may be possessed not longer than May 10, 1920.

Following many complaints of damage being done to sprouting corn and oats by meadow larks, the Bureau of Biological Survey of the Department of Agriculture sent an expert to South Carolina to investigate the extent of the damage, and as a result of his report, which showed that the complaints received were well founded, the Secretary of Agriculture issued the order. Meadow larks are protected throughout the year under the migratory bird treaty, act, and regulations, except that when any species of migratory bird becomes, under extraordinary conditions, seriously injurious to agriculture or other interests, the Secretary of Agriculture may, after appropriate investigation, issue an order permitting the birds to be killed during certain periods.

Home-cured pork of the right kind, says the United States Department of Agriculture, always has a ready market and in many cases it will prove to be the best way to market hogs.

CONQUEST OF NATURE TOLD IN HURRICANE'S BIOGRAPHY

Progress of Gulf Coast Storm Traced in Weather Bureau Reports

Warnings Lessen Destruction Wrought by Recent Disturbance—Ships and Cities from Florida to Texas Suffer

Possessing a longer arm of destruction than the mightiest of volcanoes, and leaving in its wake a no-man's land, rivaling war's scars across the face of Europe, the hurricane is chief among natural forces contending for the title "champion of destruction."

To fight the hurricane offensively is folly. For ages mankind has been able to wage only a defensive war against its terrifying "drives" and these efforts have been, until modern times, pitifully feeble. Man's only defense is to be forewarned. That it has been possible in the present generation to reduce the death toll of hurricanes in the United States to a minimum is due to the marvelous service maintained by the United States Weather Bureau.

The headquarters of the Weather Bureau, located quite to one side of main-traveled thoroughfares in the National Capital, are the nerve center of this unique organization which extends across the continent and also far out to sea, since many vessels cooperate with the bureau by making daily reports to it.

Great Storm Sighted

Early in September a hurricane, destined to devastate a wide area bordering the Gulf of Mexico, reared its head like a great monster a thousand miles to the southeast of the United States, among the islands of the Caribbean. As to what gave it birth not even the scientist knows. The forces that propagate all of these storms are shrouded in mystery. This particular hurricane was born in remote tropical waters, probably about September 5. A few hundred miles north of this center of disturbance the sea was relatively calm and passengers on steamers passing this way had no intimation of the terrific force that was generating off to the south. Likewise, the southland of the United States lay placid, in part bathed in sunshine and in part shaded by far-stretching blankets of clouds, many of them so fleecy that to the casual observer they carried no suggestion of the coming storm. But the hurricane in the tropics gathered strength quickly and soon flung itself in fury over the slender chain of islands constituting the Florida Keys.

In the face of every such rising peril the meteorologist upon whom rests the responsibility for making daily forecasts stands like one facing a thief in the dark. Beyond the mainland coast and a few scattered stations in the West Indies, he has no means of learning of the changing atmospheric conditions in those seas to the south and east, save chance reports from ships. Early reports of this hurricane were meager indeed. The first intimation of the coming of disaster was received September 8. The daily forecast for that date stated that a tropical storm had appeared to the southeast of Key West. But as to its extent, or its course, the chief forecaster at that time could only conjecture.

Despite his long experience in his profession, it was inevitable that the forecaster should be anxious—every meteorologist who is forecasting at such a time is anxious. He had been on duty in seasons past when not a single hurricane appeared. But in other years between July and October more than one such storm had left a trail of devastation across many States. The forecaster knew that millions of dollars worth of cargoes, about to sail from the Atlantic and Gulf ports, might be lost if he failed to make a proper forecast and issue adequate warnings. The fate of whole cities rested on his decision. As he turned from his study of the telegraphic reports received from the eastern and southeastern sections of the country, he joked a little—but in the manner of one whose joviality was a trifle forced, perhaps—about his repeated hard luck at being on duty "every time one of these storms hove in sight." There was an unmistakable tenseness in his manner as he studied the map, pointing to the low barometer area that was moving steadily toward the Southern States.

Weather Forecast Correct

The next chapter in the hurricane's brief history is told in the weather report of September 9: "The tropical storm was central Tuesday night and a little south of Key West where the barometer read 29.08 inches with a wind velocity of 60 miles an hour from the northeast. The storm is apparently moving northwestward, and will pass into the Gulf of Mexico during Tuesday night."

How speedily and decisively the forecaster had acted in the face of the oncoming peril is indicated by the next sentence: "Warnings to shipping and other interests have been regularly sent since Monday morning when storm warnings were first displayed on the south Florida coast."

The following 48 hours were laden with grave responsibility for the staff of the Weather Bureau. It was theirs to decide at the earliest possible moment consistent with accuracy in what direction the storm now moving with increasing power and rapidity would travel as it came nearer the mainland. On Wednesday, September 10, the report read, "The tropical storm passed Key West, Fla., about midnight Tuesday night with the barometer reading 28.81 inches, and estimated wind velocity of 110 miles an hour from the east." Here was evidence that one of the most violent storms of recent years was about to strike at some point on the Gulf coast.

This report revealed the meagerness of available information at this date regarding the progress of the hurricane: "To-night the storm is probably central in the Gulf of Mexico, not far from latitude 26°, longitude 85°, still moving northwest, and northeast storm warnings are ordered on the Gulf coast from Carrabelle, Fla., to New Orleans, where the winds will probably be strong on Thursday night. Advice has also been issued to this section to prepare for possible very dangerous winds by Friday."

Defensive War Starts

And so man's defensive war against the mighty force of nature was on.

With all its scientific data regarding the course of previous storms instantly accessible and with reports from all available points of observation tabulated and recorded on the weather map, the Weather Bureau foretold many hours in advance the peril that threatened the Gulf coast. Thus the people were forearmed.

It will be recalled that storm warnings were displayed regularly on the south Florida coast since Monday morning. How accurate the Weather Bureau's forecasts had been is shown by the press dispatches dated Wednesday night, September 10: "Lower Florida was paralyzed to-day as a result of the violent hurricane that passed over that section last night. Not a house in this city [Key West] escaped damage; 320 frame buildings practically were razed, two church edifices wrecked, and five retail stores overturned. The damage is estimated at more than $2,000,000. Shipping off the coast met with disaster. Several small vessels were sunk and others were driven to the reefs."

By this time the Weather Bureau, in its fight to keep destruction and death at the minimum, was able to act with more efiniteness, even though there was no adequate means of ascertaining atmospheric conditions in the center area of the Gulf of Mexico. The report of September 11, flashed over the wires from Washington, read: "The tropical storm is apparently central to-night in the Gulf of Mexico

with latitude 27° and longitude 88°. Absence of reports forbids the definite location of the storm center, and it is therefore impossible at this time to state the portion of the mainland that it will first reach, although it is fairly probable that it will be west of the Mississippi River. Storm warnings are displayed from the Louisiana coast eastward to central Florida and on the northwest coast of Texas."

While the hurricane was moving on its northwestward course additional news, brief but vivid, filtered in from points in its wake. September 11 the Associated Press representative wired: "Nine members of the Ward Line steamer *Corydon* crew of 36 men were brought to this port this afternoon by the schooner *Island Home*. They had been adrift on an upturned lifeboat, without food and water for three days. One of the crew, according to their story, had become crazed from suffering and privation Wednesday night, and sprang overboard."

In these hours the thoughts of the chief forecaster instinctively turned to Galveston, which in the past had suffered terribly from similar storms. Dispatches from that city indicated that the tide was rising rapidly. Water was flooding the low places on the island and people were fleeing the city. A 30-mile northeast storm was blowing. But for the Weather Bureau's timely warnings which had reached Galveston before the gale struck the city, millions of tons of cargo and scores of ships would have put to sea and would have been lost. Galveston feels that it owes much to the Weather Bureau.

Texas Lashed Furiously

In the next 24 hours the storm burst upon the Texas coast in full fury. While the papers the next few days were filled with the accounts of the damage and death caused by the hurricane the fact of greatest significance, and which the public has come to take almost as a matter of course, only partially realizing the skill and responsibility involved, was that the Weather Bureau had been able to anticipate this storm long enough in advance to prevent a loss that probably would have totaled thousands of lives and millions of dollars in shipping. Accounts of the disaster therefore visualize what would have been only a fraction of the total destruction had there been no Weather Bureau. Reports from Houston, Tex., dated September 15, declared that 120 bodies had been found on the reefs 8 miles from Portland, Tex. Most of the dead, the message stated, had been recognized as residents of Corpus Christi. The damage in the latter city was estimated at $4,000,000. Relief trains were hurried to the scene and, as if to add the latest touch of modernity, airplanes were called upon to assist in relieving the suffering, six planes being sent on September 16 from Kelly Field with food supplies for the stranded inhabitants. Among the supplies dropped was 30 pounds of yeast to be used by the relief committee in making bread for the emergency.

The tragic life history of the great storm came to an end almost as suddenly as it had begun. Retarded and dissipated by the unevenness of the land over which it had begun to travel, it was forced to slacken its speed as it made its way toward the rugged regions of Mexico. Finally, under date of September 15 the bureau completed the final chapter in the episode, showing by its weather map that the tropical storm has apparently dissipated itself among the mountains of Mexico.

Use of Disinfectant Paint Greatly Reduces Loss in Shipped Watermelons

Reduction of watermelon losses from 20 per cent in 1918 to 2 per cent in 1919 is an example of results from treatment of watermelon stems against the stem-end rot infection, according to the Bureau of Plant Industry, United States Department of Agriculture.

The records indicate that in 1918, 20 per cent of the melons shipped from certain sections of the southeastern United States rotted in transit, because of infection with the stem-end rot organism. An examination of the Bureau of Markets inspection reports on cars treated in 1919 under supervision of an agent of the Department of Agriculture shows an average wastage due to stem-end rot of less than 2 per cent. Results of the work in the past seasons demonstrate that losses due to this disease may be greatly reduced by stem treatment, and leaders in the watermelon industry are preparing to have remedial measures universally applied next season in Georgia, Alabama, Florida, and South Carolina.

Melon Industry Threatened With Extinction

Following the losses in 1918 the leading watermelon distributors, the railroads, and everybody connected with the watermelon business, realized that the melon industry in the southeastern United States was threatened with extinction by this one disease alone. A campaign for the control of the trouble was started in the spring of 1919 under supervision of the Department of Agriculture. It was found that a large percentage of losses occur in the case of melons which have been infected at the cut stem after being removed from the vine, and that disinfection of the cut stems at the time of loading the melons into cars would eliminate much of this waste. In the method adopted a boy cut off a section of the stem as the melons were packed into the cars and applied a small brushful of disinfectant paste to the freshly cut surface.

Losses Lighter This Year

Because of good cooperation by everyone connected with the watermelon business this control measure was quite generally applied in the past season throughout the southeastern territory where the disease is severe. Dealers who shipped many carloads of melons report that much good resulted from the treatment and that losses this year were much lighter than those of last season.

In one instance one-half of the melons in a carload were treated and the others were left untreated. The car was shipped from Bowling Green, Fla., to Minneapolis, Minn. At the destination, 4 per cent of the melons in the treated half were decayed, while in the untreated half 28 per cent showed decay.

WOULD MAKE N. H. STOCK FAMOUS

The farmers of New Hampshire have recently given proof of their determination to make their State known for the quality of its live stock by organizing Holstein, Jersey, Ayrshire, and Guernsey associations and by a quickened interest in the New England Hereford Breeders' Association and the State Sheep Breeders' Association. The National Guernsey Cattle Club has selected Peterboro, N. H., as its permanent headquarters.

These activities are expected to accelerate the progress of the "Better Sires—Better Stock" campaign recently instituted in the State by the New Hampshire College of Agriculture and the United States Department of Agriculture. Already there has developed great interest in the official Federal-State emblem, bestowed free of charge upon those who have been certified as using only purebred sires of good quality.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

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FAIR PROFIT NOT FIXED ON ROCK OR ACID PHOSPHATE

Following a conference held with the producers of rock phosphate and acid phosphate at Washington, D. C., on October 6, the Department of Agriculture announced to-day that after due consideration it has reached the conclusion that, in the circumstances, it would not be warranted at the present time in naming a fair profit for phosphate rock or bulk acid phosphate. The department, however, will continue fully to exercise its own powers under the licensing system against profiteering as well as in conjunction with the Department of Justice. The amendment to the control act, recently passed by Congress, carries a provision to the effect that any one who violates the act by profiteering or otherwise shall on conviction be fined not exceeding $5,000 or be imprisoned for not more than two years, or both. Any act of profiteering under the law or any other violation of the law may be prosecuted criminally after the licensing provisions thereof are terminated by a formal declaration of peace.

BORDEAUX SPRAY CONTROLS WATERMELON ANTHRACNOSE

Much loss was prevented in the Southeastern States in the past season by spraying for the watermelon disease, anthracnose. The organism which causes the trouble attacks the vines in the field, killing the foliage and lowering both the yield and quality of the fruit. By covering healthy vines with a spray solution, Bordeaux mixture, they can be protected.

The growth in popularity of this method may be seen in Florida. In 1918 not more than 300 acres in that State were sprayed. In 1919 over 3,400 acres were sprayed under supervision of agents of the Department of Agriculture. Approximately two to four applications are required in order to give the vines protection. Using figures secured after working with types of power spray pumps in Florida last season, the average cost an acre came to 94 cents for each application. Farmers have decided that this is cheap protection against a very serious disease, and it is believed certain that spraying will soon be recognized as a necessary step in good melon culture.

This season favored the spread of the disease. Severe rainy weather was experienced at one time or another during the growing season all over the melon belt, and moist weather with driving rains makes it possible for this disease to spread through the fields. Cars have arrived recently at the New York market with 80 to 90 per cent of the melons affected, the sunken, decayed spots on the rind being so numerous that in some instances the entire surface of the melon was affected.

FRACTIONS DEMONSTRATE VALUE OF PUREBRED BULLS

A few calculations in fractions indicate clearly the early rewards to the stock raiser from breeding with purebred sires instead of grade sires. The Bureau of Animal Industry of the United States Department of Agriculture, which is sponsoring the Nation-wide "Better Sires—Better Stock" campaign, calls attention to a series of diagrams issued in Wisconsin which show the progress of breeding native cows for five generations with purebred bulls, compared with five generations of breeding with grade three-fourths full-blood bulls.

After five or, in fact, any number of generations of such breeding, the calves are still less than three-quarters full blood, while if only purebred bulls are used, three-quarter bloods are produced in the second generation, and the calves of the fifth generation are thirty-one thirty-seconds full blood. The characteristics of the breed rapidly become fixed in a stock in which only purebred sires are used, while after any number of generations of breeding to three-quarter-blood sires the characteristics of scrub stock still frequently appear. A three-quarter-blood bull is much more likely to transmit unfortunate characteristics which are not visible in himself than a pure-blood bull. A single bull of this sort may undo the work of years of selection in building up a herd. The conclusion is that in grading up live stock, only purebred sires of good quality should be used.

FEDERAL INSPECTORS FIND "SHORTS" ARE MISBRANDED

Seizures of shipments of stock feeds on the charge of adulteration and misbranding, because of the sale of reground bran and screenings as shorts, have been made upon the recommendation of officials of the Bureau of Chemistry, U. S. Department of Agriculture, who are charged with the enforcement of the food and drugs act.

The feed known to the trade as "shorts" contains more nutritive material than ground bran and screenings, and sells in the market for a considerably higher price. The sale of ground bran and screenings as shorts, in the opinion of the officials, is not only a fraud upon the purchaser, but is demoralizing to the feed industry. Honest feed manufacturers who correctly label their feeds are placed at a disadvantage in competing with manufacturers and dealers who put out cheaper products under the names of higher-priced ones.

The shipment into interstate commerce of ground bran and screenings, labeled as shorts, constitutes both adulteration and misbranding under the terms of the Federal food and drugs act. Inspectors have been instructed to watch for interstate shipments of adulterated and misbranded stock feeds. Action will be taken, say the officials, in all cases found to be in violation of the law.

GOOD STORAGE ESSENTIAL TO KEEPING VEGETABLES

Good storage is essential to the successful keeping of vegetables for winter use. Most gardens produce a surplus of vegetables that can be kept for winter use, provided the necessary precautions are taken to place them in proper storage. A little carelessness in storing potatoes may result in the loss of the whole winter's supply. Time and effort spent in making the cellar conform to necessary requirements as to ventilation and protection from freezing will repay the user many fold. If it is impractical to store the vegetables in the cellar under the house an outdoor cellar may be easily constructed so that it will furnish good storage for such crops as potatoes, turnips, beets, cabbage, salsify, etc. The United States Department of Agriculture furnishes on request Farmers' Bulletin 879 on the home storage of vegetables. This bulletin contains illustrations and plans of both basement storage rooms and outdoor cellars, and gives practical directions for the keeping of the various vegetables crops.

MOVIE MEN FIND REAL DANGER IN MAKING GRAIN-DUST FILMS

Camera Operator Blinded but Continues to Turn Crank Automatically

Pictures Will Be Shown in Principal Cities to Illustrate Necessity for Precautions in Elevators and Other Plants

Taking close-up motion pictures of experimental explosions so unexpectedly violent that they knocked down spectators standing at supposedly safe distances, and practically wrecking the steel and concrete structure especially designed to withstand blasts of this sort, was the recent experience of a photographer sent by the United States Department of Agriculture to assist in preparing films for use in a campaign against grain-dust explosions. This campaign is being promoted by the department in cooperation with the United States Grain Corporation. The pictures taken at such unusual hazard were staged at a station near Pittsburgh maintained by the Bureau of Mines for the purpose of making mine-explosion investigations. The plant was placed at the disposal of the grain-dust investigators by the Bureau of Mines.

Nothing so violent and destructive as the detonations which occurred during the recent demonstration was looked for by the engineers present, who frequently had set off charges in the same plant in connection with study of mine explosions. The experiments offered overwhelming evidence of the terrific force of blasts due to flour and starch dust, and enabled those witnessing them to appreciate more vividly than ever before the penalty that often is exacted for carelessness in allowing dust to accumulate in plants.

Special apparatus was used by the investigators to register the relative violence of the different explosions. While additional research will be necessary to give the data their fullest scientific value, the results of these first trials showed that the dusts used produced explosions far more violent than was anticipated.

Cylinder Used for Demonstration

The special program devoted to work against grain-dust explosions, in which the films are to be featured, is being arranged for in principal cities of the country. They illustrate, more graphically than lectures or statistics can possibly do, the need of taking thorough precautions against grain dust in elevators and other grain-handling plants.

The apparatus used as a setting for the movie views, the taking of which involved so much unexpected adventure, consists of a steel cylinder or gallery 225 feet in length, set above ground, which serves as a counterpart of a mine gallery. In the upper surface of the cylinder, at stated intervals, are ports, some of which are provided with lids. The progress of an explosion from one end of the cylinder to the other can be detected by jets of smoke and flame that burst from one after another of these vents. The motion pictures secured show this interesting phenomenon clearly. Shelves arranged laterally inside the tube were sprinkled with flour for one of the demonstrations, and with a starch dust for another.

One end of the cylinder is open while the other is closed, except for a small aperture against which the mouth of a specially designed so-called "cannon" is placed. This was used to start the explosion, the setting off of a small charge of gunpowder throwing the dust into suspension and igniting it.

As a preliminary test, the engineers in charge exploded coal dust which made a detonation that seemed violent, indeed, to the novice, but was not considered unusual by the experts present. After the cylinder had been cleaned and "loaded" with flour dust, such as is too prevalent in carelessly operated mills, this second charge was set off. The blast was far more violent than the one preceding it and startled the engineers. However, it was mild compared with the third and last explosion, produced by substituting starch dust for the flour dust.

During each of the experiments the motion-picture operator was housed in a portable telephone booth brought to the scene to serve as a shelter and placed with the solid board side of the booth turned toward the mouth of the cylinder. This shelter was set less than 100 feet from the cylinder, and just enough to one side to be out of the direct line of the blast. A hole was cut in the wall of the booth through which the camera was trained on the scene of the explosion.

Turned Crank While Blinded

During each of the first two blasts the operator was somewhat shaken by the detonation, but the shocks were relatively light and their effect little more than temporary. With the setting off of the starch charge, however, the earth seemed to tremble, the booth rocked on its foundation, and reports received later showed that houses 2 and 3 miles away were shaken. The concussion shattered the glass in the walls of the telephone booth. The operator was temporarily blinded and almost stunned, but his long training in his profession kept him turning the crank of his camera even as it swayed to and fro in its shelter. All of this upheaval took but an instant of time. Climbing out from the broken booth the operator looked about and found that some of the engineers, who had stood at a considerable distance to witness the test, had been thrown to the ground. As soon as they recovered their senses and equilibrium they ran to the telephone booth, fearing that the operator had been killed.

While no one received serious injuries, the experiment was one which no one is anxious to go through a second time. Examination of the Bureau of Mines' equipment showed that the concrete foundations had been shattered by the violence of the blast and part of the shelves within had been blown out and reduced to kindling, while the target or deflecting screen, which stood some distance from the open mouth of the cylinder, had been partly torn from its deeply laid foundations. Motion-picture men state that in the whole history of the industry few movie-views of this sort have been taken under such hazardous circumstances.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for physical laboratory helper, for men only, on November 19 and December 10, 1919, and January 7, 1920. Vacancies in the Departments of Agriculture and Commerce, for duty in Washington, D. C., or elsewhere, at entrance salaries ranging from $600 to $900 a year, will be filled from this examination. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Veterinarian and lay inspector, grade 1, for men only, on November 19 and December 10, 1919, to fill vacancies in the Bureau of Animal Industry, Department of Agriculture, in the position of veterinarian at $1,500 to $1,620 a year, and in the position of lay inspector, grade 1, at $1,080 a year. Application form, stating the title of the examination desired, can be obtained from the Civil Service Commission, Washington, D. C.

Biological assistant, for men only, to fill vacancies in the Bureau of Biological Survey, Department of Agriculture, for duty in the field, salary $1,440 to $1,800 a year. Date of examination, November 11, 1919. Apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

How Farmers May Overcome Obstacles in Handling and Marketing Hides

Country hides and skins make up more than one-third of all the hides and skins produced in the country, and their arrival at the tannery in a sound condition is of vital interest to all who use leather. Too often, says the United States Department of Agriculture, the value of "country" hides for leather-making is less than that of "packer" hides, because less care and skill are shown in the "take-off" and in the curing and marketing. In consequence the hide trade discriminates between "country" and "packer" hides and skins, and pays less for the former. In addition to being the producer of hides and skins, the farmer is one of the chief purchasers and users of the finished products of the leather industry. He, therefore, is directly affected both as a seller and as a buyer by the quantity and quality of the hides and skins and of the leather made from them.

Many of the hides and skins used in this country, including practically all the kid and goat skins, are imported. A census of the hides and skins used in the United States during 1914 shows that 32,386,000 domestic hides and 80,359,700 imported hides, valued in the aggregate at $233,522,700, were used in the United States during that year. The wide discrepancy in the price of country hides, as compared with the value of the finished leather products, results partly from the general inferiority of country hides and skins due to improper handling, as well as to the lack of a well-defined and closely followed system of classifying and marketing these hides. Furthermore, after the producer sells them the hides must pass through numerous processes of marketing, transportation, and manufacture before being converted into leather, which in turn undergoes many additional treatments in its conversion into finished articles of commerce.

Why "Packer" Hides Have Advantage

For the most part, packer hides and skins taken off at establishments where the slaughtering is of a wholesale character, and where the men usually are employed exclusively for the purpose of removing hides, in general are superior to country hides because the skins are better prepared and more carefully graded by experts. As the hides are taken off in large numbers they are uniformly selected and cured, and generally are free from salt stains or excess salt and pickle. The result is a product of uniform selection, of good pattern and trim, and with few imperfections, making possible a maximum yield of leather of the best quality.

On the other hand, country hides and skins usually are removed by persons inexperienced in skinning. This classification also includes "fallen" hides, or those from animals that have died from disease, accident, or a natural cause, as well as those from animals that have been slaughtered for food. Country hides originate in small numbers, in scattered and remote sections of the country, and seldom are treated in a careful and efficient manner with respect to skinning, curing, and marketing. The result frequently is a poor product of irregular pattern and trim, with many imperfections; such hides and skins are usually handled several times before being available in uniform selection. Not only is the yield of leather from such hides and skins comparatively lower and more uncertain, but too often the leather is capable of only limited use. Most farmers, ranchmen, and many local butchers are unfamiliar with the specifications for the various market classes and grades of hides and skins and with their relative values and the corresponding market price. If such knowledge were universal, less misunderstanding and suspicion, which serve only to handicap the industry, would prevail and the country hide producer would be placed on a more equal footing with the buyer and would be able to demand for his offerings proper prices in accordance with their quality.

Marketing Standard Needed

At present there is no recognized standard of classification for hides and skins originating in all sections of the country. This is due partly to former haphazard methods of marketing and partly to the alleged differences in the quality and condition of these products in different sections of the country. It is asserted that the conditions which produce these differences on which price differentials are based are noticeable especially in the grain, texture, thickness, spread, and quality of the leather, and that they are caused largely by climatic conditions, methods of handling cattle, kinds of cattle, kinds of feed, methods of feeding, ticks, grubs, brands, environment, and the methods employed in skinning, curing, and marketing the hides. These varying conditions have caused the hide trade to divide the United States into nine sections for country hides and skins only, and as a result the prices for similar classes and weights for country hides and skins vary according to the sections of origin. Only hides of finest quality are used for belting, harness, carriage, and furniture leather which command the highest prices. Other hides are discounted in price because of injuries caused by grubs, ticks, brands, and mechanical imperfections. A great loss results each year from the practice of branding cattle, as the brands are often applied to both sides of the animal, anywhere from the shoulder to the tail, and are applied so deeply that the scars are visible on the under or flesh side. If lighter branding were practiced and could be confined to areas of the hide less valuable for leather purposes, such as the neck and shoulders, less damage would be done.

Every agency which operates to deliver these materials at the tannery as expeditiously and as inexpensively as possible should be reflected in lower levels in the price of the finished leather goods. The large packers have a decided marketing advantage over small producers because they deal in large numbers of hides and skins, and as a result can sort and classify them in marketing lots and sell them directly to the tannery, or else through some intermediary such as the hide broker or the tanner's buyer. The extremely scattered sources and the comparatively small individual production of country hides and skins make it impossible for the country hide producer to obtain this advantage. These widely scattered materials first must be collected and classified in large lots. They pass through many hands, each one of which exacts its toll.

The direct consignment method of marketing is employed and strongly advocated by some country hide producers and dealers. In this method the local dealer performs a real service, as he acts not as a speculator, but principally as the agent of the producer. This method approaches more nearly the packers' system of buying. Consignment marketing presupposes mutual confidence and fair dealing by both producer and dealer; otherwise it can not succeed. The principal obstacles in the way of this method are the producer's preference for ready cash, his distrust of the distant dealers, and the elimination of local competitive buying. Unfortunately many producers prefer to accept any price obtainable from local buyers, such as general stores, produce dealers, junk collectors, peddlers, and traveling hide buyers, rather than to consign their hides to unknown car-lot dealers in central markets.

Farmers' Bulletin 1055 presents facts and figures—those given above and many more—about hides in the making and on the road to market.

Cane Growers Must Unite to Stamp Out Disease That Threatens Industry

The mosaic disease of sugar cane, the presence of which has recently been discovered in Louisiana and other Southern States, presents a menace which calls for immediate concerted action on the part of the cane growers, according to the Bureau of Plant Industry of the United States Department of Agriculture, which has just completed an extensive survey of infected areas and has investigated the various methods of controlling the disease.

Cuttings taken from diseased stalks invariably produce diseased plants and careless importation of diseased seed cane is practically sure to increase the spread of the disease, investigations show. Consequently, indifference in the matter of seed-cane selection, the department scientists declare, may result in very severe losses to sugar-cane growers.

Importance of Securing Proper Seed Cane

The greatest importance, therefore, is attached to the recommendations of the department with regard to securing proper seed cane. The first and essential step at this time is the complete elimination of diseased plants. In the spring of the year the malady frequently can be checked by roguing in fields where it has not obtained a strong foothold. Roguing consists of pulling out infected plants, root, stem, and branch. These diseased plants usually wilt, and so are no longer a source of infection. But in wet weather they should be burned or otherwise destroyed, else they may sprout. Where the disease is very abundant roguing is out of the question, and all plants, therefore, should be allowed to mature, after which they should be ground and the stubble plowed up and killed.

Such treatment means that seed for replanting must be imported. Here the growers are urged to exercise the greatest care. Fortunately there is still an abundance of healthy stock in Louisiana and other cane sections of the United States. The United States Department of Agriculture will furnish information as to the nearest and most accessible source of clean seed for any region. Data have also been secured on the prevalence of other diseases and insect pests so that reasonable security against the spread of other maladies is assured.

The immediate problem confronting the scientists in this fight is how to help the cane growers identify the disease. While the general appearance of diseased plants suggests a mottling of the leaves resembling tobacco mosaic, it is difficult to indicate verbally the characteristics which distinguish this disease from others attacking the cane. An illustrated booklet with a series of colored illustrations is being prepared by the United States Department of Agriculture for distribution in the affected regions. With the aid of this material a grower can readily ascertain whether or not an unnatural appearance of plants indicates the presence of the mosaic disease. The publication also tells in detail how to check the spread of the disease.

HEALTH CONSIDERATIONS NOT SUFFICIENT TO ROUSE CITIES

(*Continued from page 1.*)

inspection instead of to Federal inspected plants.

Dr. Mohler told in detail of the various examinations made by Federal inspectors, following through from the time the animal comes off the scales until it is killed, cured, processed, canned, or prepared in any other way. He told also of the economic as well as the hygienic importance of meat inspection to the country.

"Municipal and State meat inspection," he concluded, "is a field where a great deal of constructive work remains to be done. It is paramount for health reasons, and the health side appeals to many people. Yet the economic side may appeal to a great many more. Human welfare is the common cause we are serving. If we study wisely the aims of the various economic groups into which the population of this country is divided, we may meet with cooperation that will simplify many a knotty problem and hasten the successful solution of others."

Few Cities Have Inspection

Dr. Mohler was followed by John Roberts, also of the Bureau of Animal Industry, who told of a survey recently made to determine what proportion of cities maintain meat inspection and what the quality of the inspection is. Out of over 1,400 cities included in the survey, only 195 were shown to have meat inspection of any kind. In most of these no effort is made to maintain the Government standard.

One of the purposes of the survey was to ascertain how many cities have a public abattoir, which, according to Mr. Roberts, "affords the most practical way in which a community can properly protect its citizens against diseased and unwholesome meat, because only at such central places can a thoroughly efficient system of meat inspection be economically carried out." After sifting the reports, it appeared that only 27 cities have municipal or central abattoirs. Sixteen of the 27 are southern cities, Albany, Ga.; Macon, Ga.; Baton Rouge, La.; Winston-Salem, N. C.; Laurens, S. C.; Beaumont, Tex.; Taylor, Tex.; Paris, Tex.; Winchester, Va.; Anniston, Ala.; Atlanta, Ga.; La Grange, Ga.; Columbus, Ga.; Savannah, Ga.; Norfolk, Va.; and Roanoke, Va. Eight are in the northern portion of the country west of the Mississippi—Joplin, Mo.; Devils Lake, N. Dak.; Grand Forks, N. Dak.; St. Cloud, Minn.; Yakima, Wash.; Moorfield, Minn.; St. Paul, Minn.; and Lincoln, Nebr. Two are in New England—Bridgeport, Conn., and Pittsfield, Mass. The remaining one is Detroit, Mich.

The number of inspectors devoting their whole time to municipal meat inspection is 226, while 182 others are engaged part time. The leading States where inspectors devote their whole time to the work are California, Ohio, Louisiana, Kentucky, New York, and Texas. Salaries average highest in Washington, Oregon, and Louisiana and lowest in Massachusetts and Indiana.

A few only of the cities have a really adequate inspection of meat. Those ranking highest in point of expenditures and number of inspectors engaged are San Francisco, Cleveland, Los Angeles, Oakland, Columbus, Louisville, New Orleans, Denver, and Philadelphia.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended October 25, 1919:

The Roundheaded Apple-Tree Borer. Farmers' Bulletin 675.

Homemade Fireless Cookers and Their Use. Farmers' Bulletin 771.

Feeding Hens for Egg Production. Farmers' Bulletin 1067.

Use of Toxic Gases as a Possible Means of Control of the Peach-Tree Borer. Department Bulletin 796.

A survey of the Fertilizer Industry. Department Bulletin 798.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Club Girls to Learn How to Make Muscadine Grape Products

The muscadine grape—the most easily grown and most common grape in the southern coast States—is coming into its own. Its delicious flavor has long made it a favorite in the localities where it is a native, but the fact that the grapes drop from the stem when they are ripe enough for table use precludes the possibility of shipping them.

For a number of years experiments have been jointly conducted by the United States Department of Agriculture and the North Carolina Agricultural Experiment Station at the Pender County farm, Willard, N. C., for the purpose of improving muscadine varieties and for determining the best way of utilizing the fruit.

The second week in September district agents from the various States in the muscadine territory gathered at the North Carolina Experiment Station to learn cultural methods and the results of the investigations which have been carried on there.

In the past 10 years southern club girls have canned hundreds of thousands of tins of fruit and vegetables. The money from their sale has brought comforts and even luxuries into hundreds of homes in every southern State, many of which would have lacked them otherwise. Because of their past success, the club members and the home-demonstration agents who teach the girls are anxious to learn of new products which they can make at home and for which there is a ready market. The United States Department of Agriculture and the North Carolina Experiment Station feel that the muscadine grape offers a new and profitable field to southern club girls. The gathering of some of the district agents in the coast States at the grape seminary was for the purpose of accumulating knowledge on the growth and use of the grape, for the purpose of teaching the club girls.

The forenoons of the conference were devoted to making various products for which the Muscadine grape is especially adapted. The main product is the bottled juice, which has a beautiful amber color, whether it is made from a variety that is golden or purple, because the grapes are not crushed enough to extract the color. To make the juice, the grapes are put through a press and are then treated by a method which produces a clear, sparkling, delicious drink, with the Muscadine's characteristic aroma and flavor.

Everything Used But the Seeds

The pulp that is left after the first juice extraction can be used in many ways. The skins may be separated from the pulp and seeds and used to make vinegar. A delicious jelly is made from the skins and pulp, or jelly can be made from the entire grape. If the pulp is freed from skins and seeds it makes appetizing pastes, marmalades, sauces, and catsups. Sirups made from the jelly stock, with the addition of sugar, form a base for refreshing summer drinks.

The afternoons at Willard were spent in the vineyard, where the culture, pruning, and training of the different varieties were studied. Enough varieties have been developed with different ripening periods so that a succession of ripe fruit may be had for many weeks.

Club girls living in sections where the Muscadine is not growing at present will be given cuttings as prizes for club work. The cultivation and use of the Muscadine will be encouraged in all the southern coast States, and home-demonstration agents will teach the methods of making Muscadine products which find a ready sale.

DIVIDE PRIZES WITH BREEDERS

One of the largest and best exhibits of registered pigs ever shown in Colorado was brought together at the Larimer County Fair, Loveland, by the boys and girls of pig clubs organized by the United States Department of Agriculture and the State agricultural college. Sixty-six registered pigs, Poland Chinas and Duroc Jerseys, were shown. Only nine club pigs entered were grades. The club pigs competed successfully with the entries of the best swine breeders in the State. A Junior Poland China sow, the property of a club member, ascended to the reserve championship, any age, any breed, being second only to a Duroc sow raised at the Colorado Agricultural College.

Michigan Boys and Girls Put On Demonstrations at State Fair

Every boy and girl in Michigan who belonged to a club organized by the Department of Agriculture and the State Agricultural College at East Lansing had an opportunity to visit the State fair at Detroit this year, free of charge, and to win valuable prizes.

For purposes of competition in the boys and girls' club work, Michigan was divided early in 1919 into five districts. In each of these districts contests in six projects—canning, hot school lunches, garment making, handicraft, poultry, and live stock judging were held during the summer. Late in August the three club members in each project who were best in their district went to the State fair with their local leaders. The fair association paid their traveling expenses—and some came from the upper peninsula. The demonstrations they put on were always surrounded by a crowd and many a spectator old enough to be a parent of one of them envied their skill, knowledge, and deftness. A large loving cup was given by the fair association to the prize winning team in each project, with money prizes for the second and third teams. Middlesex Club, Barry County, won in canning; Coldwater Club, Branch County, in garment making; Scotts Club, Kalamazoo County, in hot school lunches; Holton Club, Muskegon County, in handicraft; Hillsdale Club, Hillsdale County, in poultry; Dixboro Club, Washtenaw County, in live stock judging.

BLOOD OF CHAMPIONS IN PIG-CLUB ANIMALS

If good blood and good individuals will give the right start in the pure-bred hog business the boy and girl club members in the vicinity of Oxford, Benton County, Ind., are on the road to success, for the pigs owned by them are of famous Poland China strains.

The people of this community have already had an opportunity to see what some of the breeders of good hogs have been doing, for several well-known hog breeders live in Benton County. These men, who believe in investing money in

a few outstanding individuals and raising nothing but the best, cooperated with the bankers and the county agent in inducing a number of Indiana breeders to sell some good gilts to the Benton County boys and girls in order that they might get started right in the hog business. Consequently the members in the pig club at Oxford have received pigs sired by well-known Poland China boars, and the responsibility of developing them into good breeding animals now rests with the boys and girls.

Twenty-six members are enrolled in the club, which is organized on the basis of a breeders' association. The club will elect its own officers, and with the assistance of the county agent, the bankers, the breeders, and their parents will proceed to do business for themselves.

LOUISIANA CLUB BOY IS UNDAUNTED BY OBSTACLES

The boy who is most interested this year in club work in Larose, La., is lame. When the garden club for boys was organized by the county agent in his town this lad was one of the first to enroll, and his interest and enthusiasm have never flagged in spite of the obstacles which have arisen to impede his work.

After marking off his garden plot he worked it at first with the aid of a horse. In a short time this helper died. The boy then harnessed his pet dog to the harrow, but the dog after working as a substitute for a few weeks decided life was not worth living if he was obliged to do a horse's work, so he deserted. Since then, with the harness attached to the harrow, the energetic club member himself has pulled the harrow. His club leader reports his garden in prime condition and free from weeds.

GOOD RESULTS RECORDED BY NEGRO CLUB WORKERS

The county and home demonstration work in the South among Negroes is done in almost all instances by members of their own race who have been trained by the white extension workers. The same types of club work are done by the Negroes as are done by the white club members. The results have been gratifying in every locality, according to the United States Department of Agriculture and the State agricultural colleges which cooperate in the work.

A Negro agent in Pulaski County, Arkansas, tells of some of the results of her work as follows:

"Mr. Jim White was induced, through the influence of the agent, to remodel his home, adding a new screen porch, which includes the well. This makes it very convenient for the housewife. The house has been painted recently. A sanitary outhouse has also been built and the garden enlarged and well fenced. This was done last year.

"Mrs. White, his wife, became very deeply interested in poultry and from the sale of chickens and eggs she realized over $125. She used the money for furnishing a living room in her home. The walls were papered, three nice rugs had been put on the floor, and a set of mission furniture was very neatly arranged in one room.

"When I visited this room in 1917 I found in it none of the things mentioned above and the contrast was quite striking. These improvements were a direct outgrowth of the home demonstration work through the poultry club, according to Mrs. White.

"Mrs. M. Robbins, living near Mt. Zion Church, has sold all of her scrub poultry and has a fine lot of White Wyandottes instead. She won the first prize at the county fair last year and is very hopeful of her future success with that breed of chickens.

"The club girls at St. John's community have commenced their annual 'clean-up' campaign, to the end that they have white-washed several homes and surrounding outhouses on their home grounds. The president of the club is very active. The garden club members all purchased their seed together and each member planted seed on the same date."

CLUB CHILDREN HOLD PAGEANTS

At every State fair held this year, the boys and girls' clubs of the State gave a pageant. In some only a comparatively few children took part, but in others there were a large number. At the Interstate Fair at Spokane, Wash., 300 children participated in the pageant. The parade was composed of three groups, separated by floats. The first group were in red, the second in white, and the third in blue. At the head of the parade was a girl dressed as Miss Columbia. Canning, dairy, and pig work each had a handsome float devoted to its activities.

"TON-OF-PORK" CLUB WORKING

Seven boys and three girls in Higganum and Haddam, Conn., have organized a "ton-of-pork" club. The purpose is to produce 2,000 pounds of pork this fall from 10 pigs. Each member in the club owns a small porker. Early in July the weights of the club pigs averaged 37 pounds. By November 1, or in four months, the members of this club, which is supervised by the extension division of the State agricultural college and the United States Department of Agriculture, expect to make their pigs average 200 pounds each, or 2,000 pounds for the 10 pigs.

The State leader of the boys' and girls' clubs in Connecticut believes in definiteness in club work and the "ton-of-pork" idea is in line with his program.

FINANCIAL INDEPENDENCE WON BY CLUB BOYS AND GIRLS

The days of penury for the boy or girl who lives in the country is a thing of the past. No more is Johnnie Jones a penniless young man, dependent on his father's generosity for spending money and with seldom a cent in his pocket. Wide-awake Johnnie belongs to-day to a club organized by the Department of Agriculture and the State college and is a young man of financial standing who owns property and has money in the bank.

The amount of money which a boy or girl yet in school can make through club work is surprising to those unacquainted with the results. At the Eastern States Exposition at Springfield, Mass., in September, was a club camp to which came 222 boys and girls. These youngsters were the champions in the 10 Eastern States and the trip to Springfield was one of the awards they had won by superior work in their local clubs.

At the camp were 55 who had been in the club for a year, 67 for 2 years, 44 for 3 years, 39 for 4 years, 10 for 5 years, 5 for 6 years, 1 for 7 years, and 1 for 9 years. Eighty-nine of the group owned $9,350 worth of Liberty bonds. War savings stamps to the amount of $6,266 were in the possession of 172 of the boys and girls. In savings banks 137 have accounts which have a total valuation of $13,736.54. The average amount of money invested and deposited by the club members was $132.21.

Seven of these young business men owned 10 colts, 54 owned 97 pigs, 95 calves, 9 owned 54 sheep, and 41 owned cows or baby beeves. Poultry is a favorite project, 53 members owning 3,400 birds. One young lad owned a town lot and 6 others owned farm land valued at $7,110. Ten owned $567 worth of furniture or kitchen equipment and four owned automobiles valued at $1,810.

That club work makes for more and better school work is testified by the educational record of the 222 at Camp Vail. Fifty-two are in grammar school, 144 in high school, 6 are in college, and only 20 are not in any school.

Figures bear out the fact that club work develops the earning power through self-help in a boy or girl, and encourages business ability, thrift, and a love of farm life.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

IOWA FARMERS TRYING COOPERATIVE BUILDING

A modern counterpart of the old-fashioned barn raising, with certain noteworthy features added in the form of assistance by State authorities, has appeared in Marshall County, Iowa, where the farmers have had great difficulty in securing carpenters to erect farm buildings. The plan being worked out is for groups of farmers to cooperate in erecting their structures under the direction of the county agent and the farm building experts of the agricultural extension department of Iowa State Agricultural College.

Poultry houses, because of their simplicity, are being tried first. A feature of the movement which is looked on as giving particular promise is the fact that the agricultural extension department furnishes plans for the buildings so that the cooperating builders may have explicit directions for cutting materials and erecting the structures. The first poultry houses will be built under extension supervision, but after that the farmers are expected to duplicate the work on other farms. In case this experiment proves satisfactory the same principle may be applied to more pretentious building enterprises.

JACK RABBITS DIE BY THOUSANDS

More than 20,000 jackrabbits have been killed thus far in organized drives on the Dietrich tract under the auspices of the Lincoln County (Idaho) Farm Bureau. Farmers report many crops have been saved by these drives and that less poison will be needed during the coming year to control these pests. A big poisoning campaign is scheduled for the coming winter under the direction of the county project leaders. Farmers are unanimous in the opinion that they must organize and kill the rabbits and squirrels or else turn the tract over to them.

LIVE-STOCK MEN FOR MEMORIAL

Members of the Sullivan County (Indiana) Live Stock Association, who are also members of the county farm bureau, have passed resolutions that a memorial building be built for the soldiers and sailors who fought in the world war. They propose that this memorial be a building suitable for the needs of the various interests, such as a memorial building would serve, and they recommend to the committee that if possible and practical this be built for live-stock shows and sales.

Many Pit Silos Are Constructed After Demonstrations By Agent

Members of the Niobrara County (Wyoming) Farm Bureau are constructing a large number of pit silos. Several successful demonstrations have been held by the county agent. Previous to one of the demonstrations the collar of one silo had been constructed and the pit dug several feet.

The farmers were shown how to plumb the walls by means of a "reamer," how to mix cement and apply the same to the walls, and how to make a hoist. A second silo was then started, the collar being laid out, the pit dug and the collar poured. In this manner all the steps in putting down a pit silo were demonstrated, much to the satisfaction of the farm bureau members present.

SHEEP SHIPPED TO NORTH DAKOTA

County agents in North Dakota, with assistance of the live-stock specialists, have bought 40 double-decked cars of breeding ewes from Montana, which have been distributed to various counties. This has been done in order to increase the number of sheep kept on farms in the State. The agents have advocated the purchase of full-mouthed Montana or Western breeding ewes, which the Montana rancher has been compelled to dispose of on account of the drought.

INCREASED INTEREST IN SILOS

A large amount of forage crops is being grown by farm bureau members in Cochise County, Ariz., and an increased interest in silos is noticed. Four members are each putting down a 100-ton silo. A new type of silo is being placed. A trench 50 feet long, 12 feet wide, and 5 feet deep is dug and 3-foot adobe collar built, making a total depth of 9 feet. The trench could not be made deeper on account of a shallow water table.

"CUT EXCHANGE" IS STARTED BY NEW YORK FARM BUREAUS

A cut service has been started by the farm bureaus in New York which will enable the county agents to exchange cuts for use in their farm bureau publications. This service will be handled by the State extension office. Already 250 cuts have been listed for exchange.

Card indexes will be furnished to every county agent cooperating. It is expected that the agent will order cuts he desires, returning them immediately to the central office. Because of the high price of cuts at this time, it is expected that this service will be in considerable demand.

ASSOCIATION HAS BIG YEAR

The Coronna Product Co., which is composed of members of the Dekalb County (Indiana) Farm Bureau, has a paid-up membership of 46, and during the year shipped 56 cars of live stock to markets—a little better than one carload for each member. Of this amount of live stock sold there were 3,515 head of hogs, 420 head of sheep, 233 cattle, and 205 calves. The total weight of this live stock was 929,018 pounds. The gross receipts for the stock marketed amounted to $142,445.10, while the marketing expense, worked collectively, was only $5,661.46.

HAMMOCK FOR BABY'S RIDE

The county agent in Walsh County, N. Dak., has found a solution for a problem that has perplexed many a mother—what to do with the baby when the family is taking an automobile ride. He describes his apparatus as follows:

"Take two pieces of ⅜-inch rope, each long enough to reach from one top bow around back of the seat to the other. Into these splice two short pieces to make a rectangle about a foot wide and nearly as long as the car body is wide. Leave ends of rope at the four corners to tie to the four bows on the top. Over this rectangle fit a denim basket about 2 feet long. This will make a very satisfactory hammock and one that can be used at any time of the year. The baby carried in it will be happier than in the mother's lap and the mother will have a pleasant trip."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Cooperators Provide Funds.

An interesting reversal has taken place in the cooperative extension work of the United States Department of Agriculture. In the employment of county agents, home demonstration agents, and boys' and girls' club workers the Federal Government last year provided $3 for every $2 coming from States, counties, and other sources. This year the proportion is the other way. The Federal Government is spending only $2 for every $3 from cooperating agencies. This change is due to the fact that when Congress made appropriations to the Department of Agriculture for the present year, it eliminated entirely the emergency item of $6,100,000 to be used in the cooperative demonstration work, and provided in its place an item of $1,500,000 to be used by the States under the same conditions as funds provided under the Smith-Lever Act. Contributions from counties last year amounted to $2,500,000. This year they will exceed $4,100,000. At the same time, contributions from States, colleges, and miscellaneous sources have increased from $3,600,000 to $4,300,000. The number of county agents, home demonstration agents, and club workers has decreased decidedly, but the shrinkage is nothing like so large as would have been the case if the States, counties, and colleges had not provided more funds.

Because of the readiness of the States to meet the Federal Government more than halfway, it is hoped, despite the reduced funds at its disposal, to hold the force of county agents at the present number, but it is admitted that the services of a number of women and club agents will be lost.

Don't Waste Fuel in Dairy.

Many factory operations of the dairy industry require the use of heat, although they demand little power. As exhaust steam contains about 90 per cent of its original heat, it can be advantageously used in pasteurizing milk and cream, and in sterilizing dairy equipment in the average commercial plant, according to specialists of the United States Department of Agriculture. They advise that all dairy factory men utilize this waste steam during the current winter, when fuel may be scarce and high in price. Information on how to use steam effectively will be furnished free of charge when request is made to the United States Department of Agriculture, Washington, D. C.

A Point of Vital Contact.

One of the points of vital contact between the United States Department of Agriculture and the State agricultural colleges and experiment stations—the chief means, perhaps, by which experiment station work, extension work, and the like are coordinated and kept fairly uniform throughout the country—is the Association of American Agricultural Colleges and Experiment Stations, which will hold its thirty-third annual convention in Chicago November 12 to 14. At the same time a number of subsidiary and related organizations will hold their annual meetings. Among them are the Country Life Conference, American Association of Farmers' Institute Workers, the Conference of Farm Management Demonstrators, and of the State leaders of county agents for the North and West, the Association for the Advancement of Agricultural Teaching, the Society for the Promotion of Agricultural Science, the Society of Agronomy, and the Farm Management Association.

Some of these organizations have been fostered by the Department of Agriculture and the agricultural colleges. Others are independent organizations with related interests. In practically all of them, officials of the Department of Agriculture are interested. A number of department men will be in attendance and, through the various meetings, will feel the will and the wishes of the people at the same time that they pass their own thoughts along to workers in various lines throughout the country.

Guarding Against Fires.

These are the days when the fire hazard is considerably increased over what it was in the summer months. With the coming of cool weather, quick fires are started in the stoves or furnace and often a flue is discovered that needs repair. Accumulations of inflammable rubbish in which a bad blaze may be started should be got rid of. Matches are used in increased numbers in winter, and that means additional chances of accidental fires. Kerosene is employed in greater quantities, being used for starting fires and for the lamps, and, therefore, this hazard is increased. An even graver menace lies in the improper handling of gasoline. It is highly important that every precaution be taken to store the gasoline supply in properly located and constructed reservoirs.

This is the season also for the farmer to look to his fire-fighting equipment. A pail of water is the oldest, simplest, and cheapest of fire extinguishers. There is no reason why pails of water, to be used only in case of fire, should not be installed in every farm building. If possible they should be painted a special color, preferably red, or labeled so as to be conspicuous and less subject to unauthorized use.

The chemical extinguisher has come into quite general use on automobiles and elsewhere about the farm, and has many advantages over the water bucket. It can be employed, for example, in subduing fires among oils, where water is of no value. In the absence of a chemical extinguisher, sand is serviceable in extinguishing burning oil in case of a small fire on the floor or in a shallow container. Sawdust is also effective in putting out oil fires, if it is scattered over the entire surface of the burning liquid so as to smother the flames. The United States Department of Agriculture has issued a Farmers' Bulletin 904, "Fire Prevention and Fire Fighting on the Farm," which discusses the various types of fire extinguishers and their merits. It may be had free by addressing the department.

Graded Butter Prices Higher.

The United States Department of Agriculture provides a butter-inspection service on the New York, Chicago, Boston, Philadelphia, and Minneapolis markets. This service is not compulsory, but it is valuable to producers or dealers who market butter of superior quality as the "official once over", guarantees the quality of the product and correlates it to its selling price. One day recently a 63-pound tub of butter at one of the markets scored 87 and sold for 50 cents a pound, or a total of $31.50, as compared with another similar weight tub of butter which scored 93 and sold at 63 cents a pound, or for $39.69. The higher-scoring butter commanded a gross price $8.79 higher than that of its lower scoring mate. It pays creamery men to make the best grade of butter possible and then to

market it on the scored basis in order to realize its full worth.

United States' Work Interests Danes.

One of the extension workers lent to the French Government by the United States Department of Agriculture for canning demonstration work, spent September in the Scandinavian countries. During his stay he addressed a meeting of the upper and lower houses of the Danish Legislature on the subject of extension work in the United States and how the work is administered. The privilege of speaking before the Danish Legislature is extended to few outsiders. Following this address, the Minister of Agriculture arranged for the American extension worker to give an address on home demonstration work before a large audience of representative people.

Demand for Rabbit Skins.

In recent years several kinds of fur, formerly of so little value as to offer no inducement to the trapper, have been raised in price, and consequently collecting them has been made profitable. Rabbit pelts, which are extensively used by hat makers, are among these products. One eastern concern has announced that it will need 10,000,000 rabbit skins during 1919 and 1920, and it desires as far as possible to secure them from American sources. This is an indication of a market which should interest many a farmer boy. This fall and winter dried, cased rabbit skins will probably bring a reasonably good return. They are sold by the pound which will contain seven or eight skins. Many farm boys can readily acquire, in the course of the winter, large numbers of skins which will net them a tidy sum and, in addition, they will have the pleasure of trapping experience. The United States Department of Agriculture will supply any inquirer with the names and addresses of possible purchasers of rabbit skins and other pelts.

War Increased Dairy Exports.

During 1914 the United States exported only 700,000,000 pounds of milk in the form of butter and cheese and no condensed milk. The war worked wonders, however, in developing our foreign trade because of the curtailment in domestic supplies of the Allies and importations from prewar sources. During 1919 the United States shipped abroad 620,000,000 pounds of milk in the form of butter, 160,000,000 pounds of milk in the form of cheese, and 1,770,000,000 pounds of milk as condensed milk, a total of 2,550,000,000 pounds of milk as dairy products used for foreign shipment. For comparison's sake these amounts have all been reduced to pounds of milk. Previously such exports were generally expressed in pounds of butter or cheese and cans of condensed milk.

Indicative of the fact that the United States did not supply foreign countries with all the dairy products it produced during the war, the factory production of butter during 1918 amounted to 793,289,301 pounds, while the output of cheese was 352,621,615 pounds, and the condensed milk total amounted to 1,675,477,360, enough of these dairy products being kept in the United States to provide for the domestic needs.

How Our Milk Is Used.

Estimates made by the United States Department of Agriculture show how the 87,905,000,000 pounds of milk produced in the United States annually are utilized. Forty-four and one-half per cent is used as fresh milk for human food purposes, while 36 per cent of the gross supply is converted into butter, and 4.5 per cent is made into cheese; another 4.5 per cent is transformed into canned milk, 4 per cent is used in ice-cream making, 4 per cent is used in feeding calves and hogs on the farms of origin, and 2.5 per cent is lost in shrinkage and other waste of the dairying industry.

Another County Against Tuberculosis.

Hinds County, in which Jackson, the capital of Mississippi, is located, has followed the example of Clay County, Miss., in formally voting to carry on the campaign of tuberculosis eradication on a county-wide basis. This is a county in which an effective tick-eradication crusade was undertaken, and since the culmination of that effort a number of valuable dairy and beef herds have been built up. One of these herds boasts of a winner of the international championship. The vote is interpreted by officials of the United States Department of Agriculture, who are cooperating in the campaign, as an indication that the population of the entire county has come to see the value of concerted county-wide effort in combating tuberculosis among farm animals.

A Doctor to Old Shoes.

To reduce the high cost of walking, the United States Department of Agriculture has become a doctor to old shoes—not a general practitioner, but a consulting specialist both in diagnosis and treatment. One of its most recent prescriptions, evolved by the Bureau of Chemistry, has to do with the pair of last winter's shoes that, about this time of the year, are pulled out of the closet all full of mildew and looking hopelessly done for. The prognosis is that the disease is not fatal, but that the shoes are good for a month or two anyhow. The treatment is: Brush or rag, applied externally; castor oil, small quantity vigorously rubbed in; sunshine, one or two days.

Soft Drinks Falsely Labeled.

Prohibition has been followed by a flood of soft drinks of every conceivable type and variety, many of which are falsely labeled, the Government contends. Literally, hundreds of new beverages have been rushed to the soda fountains and "ade" stands by makers who have not informed themselves of the provisions of the food and drugs act directly concerning their industry. The Bureau of Chemistry of the United States Department of Agriculture, which enforces this act, finds that a principal source of difficulty for numerous makers of soft drinks is their disregard of an opinion issued by the bureau several years ago, that "such terms as ade, punch, crush, and smash, when used in conjunction with the name of a fruit, can be applied correctly only to beverages, either still or carbonated, which contain the fruit or juices of the fruit named. Such terms should not be applied to products flavored only with essential oils or essences."

Labels which the bureau declares to be false have been resorted to by many soft-drink manufacturers in an effort to explain the cloudy appearance of their products. With the use of extracts made with alcohol rendered unlawful or inadvisable, soft-drink manufacturers have resorted to extracts which are in the form of emulsions. Speaking generally, these are just as good as the alcoholic extracts, but when used in drinks give the latter a cloudy appearance. This characteristic of many of the new beverages has led manufacturers to attempt an explanation by employing wordings and illustrations in their labels which specifically state or imply that the beverage contains fruit juice or fruit pulp, whereas their product is really flavored only with essential oils or essences.

Tuberculosis War in Northwest.

A survey of Island County, Wash., recently completed, which was undertaken to determine the extent of tuberculosis among the live stock, showed that approximately 1 per cent of the cattle were tuberculous. All such animals have been destroyed. In the State of Oregon there are five counties engaged in systematic eradication of tuberculosis from circumscribed areas. In Idaho, Utah, and Nevada campaigns are being carried on in a similar fashion. In the three States last mentioned tuberculosis does not exist extensively.

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REAL SUGAR SUBSTITUTE HAS SANCTION OF GOVERNMENT

Malt Sugar Sirup Has High Food Value and Delicious Flavor

Made from Barley in Same Plants and With Practically Identical Equipment Formerly Used in Making Beer

Malt sugar sirup is a brand-new sweet which has arrived on a commercial scale at the psychological moment to relieve the sugar shortage, say the specialists of the Bureau of Chemistry, United States Department of Agriculture, who have investigated various substitutes for sugar. In addition to being a sweet, malt sugar sirup has a delicious flavor, somewhat resembling that of honey, which adds much to its palatability and value as a sugar substitute.

Commercial Production Beginning

While malt sugar has long been known to chemists, its production on a commercial scale is only beginning. Two factors have stimulated its production recently. The shortage of sugar has developed a market for it, and the recent prohibition law has made available both the raw material and the machinery needed for its manufacture. Malt sugar sirup is made from the same grains as beer, and may be made from corn or potatoes or any plant containing starch. Barley, which was used until recently in the manufacture of beer, can be used now to produce malt sugar sirup.

Breweries, with very little change, can be used and are now being used for its manufacture. Up to a certain point the process for making malt sugar sirup is the same as the process for making beer. Evaporating pans is the principal additional equipment required by breweries to become malt sugar sirup factories.

Excellent Substitute for Sugar

Malt sugar sirup looks very much like maple sirup. It can be used for everything that cane sugar is used for. While its use on the table may not be quite as convenient as sugar, it is a most excellent substitute for table use when sugar is not to be had, as it not only provides sweetness but is equal to sugar in food value. For cooking and baking purposes and for making candy it is not only equal to sugar in convenience and food value but is superior for some uses because it will not so readily crystallize.

Used in Manufacture of Candy

Malt sugar sirup is now being sold in large quantities to commercial bakeries and candy and soft-drink manufacturers, who use it in place of sugar. The wholesale price as quoted in recent advertisements in trade papers and elsewhere is from 7 to 9 cents per pound in barrel lots. Many retail grocers do not handle it yet because there has been little demand for it on the part of housewives. Grocers can now obtain it and no doubt will be glad to do so as the demand for it increases. Housewives can well conserve their dwindling supply of sugar by using it in cooking, baking, and homemade confections, and even on the table for sweetening coffee, oatmeal, and desserts. It can be used for every purpose for which sugar is used. If the housewives want it, the grocers will get it.

Although malt sugar sirup is being called upon, so far as household use is concerned, merely as a pinch hitter in

(*Continued on page 16.*)

PUREBRED DAIRY SIRES

EVERY dairy herd, regardless of its quality or breeding, should have a good purebred dairy bull at its head, says the U. S. Department of Agriculture. This applies to all scrub and grade herds as well as to herds of better breeding. The daughters of a scrub cow and a good purebred dairy sire are only grades, but often their production records are double the records of their dams. If these daughters are then bred to first-class purebred dairy bulls of the same breed, the granddaughters may become high grades of large production. In this way each generation may climb to high and still higher levels. The descendants of grade cows and purebred bulls can not be registered but in production of milk and butter fat they may equal purebreds. Improvement due to feeding and selection has a limit beyond which it is very difficult to go, but there seems to be no limit to improvement due to breeding.

AGRICULTURAL DEPARTMENT WILL AID IN TAKING CENSUS

Statistics Obtained Will Largely Determine Government's Land Policy

Farmers Urged to Cooperate in Assembling Facts Which Will Aid the Development of Better Agriculture

In an advisory capacity, the United States Department of Agriculture is assisting the Bureau of the Census in preparations for taking the 1920 census. Because the farmer usually is busy in the early spring and also because the farm herds and flocks are not as replete at this period as at some other season, the date of the census has been changed to January 1, 1920, instead of April 1. Hence, on January 1 in all sections of the country enumerators will begin the work of visiting the 7,000,000 farms peopled by 35,000,000 rural citizens, who comprise practically one-third of the total population of the United States.

Figuring by Farmers

Farmers over the country are urged by the Federal Department of Agriculture to acquaint themselves as thoroughly as possible with the requirements and make-up of the census questions. Considerable figuring and accounting must be done by the farmer—although the computations are in no respect as complicated as those essential in figuring his income-tax return—to answer accurately and fully the questions which will be put to him by the enumerator. Many of these questions cover subject matter heretofore not included. As the statistics obtained from the agricultural census will largely determine the future land policy of the Federal Government, it is every farmer's duty to make individual answers as accurately as possible. Such information involves some little study on his part previous to the appearance of the enumerator.

It is only the uninformed farmer who shies from the census enumerator as though he were an objectionable book agent. Others are glad to aid this work of assembling specific facts and figures about all the farming operations and

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farms of this country, since they are aware that this information is used directly for the promotion and development of better agricultural conditions throughout the country.

New Questions in Summary

The agricultural census statistics are divided into facts covering farm tenure; farm acreage; farm encumbrances; farm values; farm expenses; uses of the land in 1919; drainage crops produced in 1919; live stock maintained, including an enumeration of the various numbers of each class and grade on every farm; farm facilities, such as tractors, automobiles, trucks, and other farm conveniences; cooperative marketing; purebred animals maintained; fruits; nuts; and forest products.

Information will be secured which will enable the United States Department of Agriculture to figure up the length of the "agricultural ladder"—how long it takes the young farmer to learn the rudiments of his trade, so that he is able to graduate from the position of hired man to that of cash or share tenant, and later on to change from tenant into owner. Furthermore, the name and address of the owner of each piece of land in the United States will be obtained. This information will be secured by new questions, such as: How many years, if any, did you work on a farm for wages? How many years have you been, or were you, a tenant? How many years have you farmed as an owner? How long have you operated this farm? If you rent all of this farm what do you pay as rent? If you rent any farm land from others or manage any farm land for others, give name and address of owner of land.

Other new questions in the coming census involve the amount of land from which no crop was harvested this year because of crop failure; crop land lying idle or fallow in 1919; pasture land in each farm. The farmer is also requested to give the total value of his farm January 1, 1920, as well as the value of all buildings on the farm and the value of implements and machinery belonging to the farm. If any encumbrances exist against the property, he is asked to specify the total amount of debt on the land on the day the census is taken, and the rate of interest he pays on this debt.

Under the head of farm expenses each farmer is asked to state the amount expended in 1919 for hay, grain, mill feed, and other products not raised on the farm which he used as feed for domestic animals and poultry; the amounts of cash expended for manure and fertilizer and for farm labor, exclusive of housework. He also is to give the estimated value of the house rent and board furnished farm laborers in 1919 in addition to the cash wages.

Information on Unimproved Land

Special attention is also given to the matter of drainage, particularly with regard to the area of the farm which has been improved by drainage and whether a drainage or levee district or some form of stock company was organized to handle drainage. He is asked to tell the amount of land provided with artificial drainage and the additional area needing drainage, with respect to that needing drainage only, drainage and clearing, or clearing only. The statistics for the crop and live-stock reports are quite similar to those used during previous years, although some minor modifications have been made.

There are other new items listed under the caption of farm facilities which include particulars regarding the number of tractors on the farm, the number of automobiles, motor trucks, whether the farm has a telephone, water system, and gas or electric lights. Information is also requested as to whether there is a local cooperative marketing club, and farmers are asked to give the value of all farm products sold through or to such organizations in 1919, and also the cost of supplies purchased through the assistance of such an association.

Complete information is also asked regarding the orchard fruits, subtropical fruits, nuts, small fruits, fruit products, grapes or grape products, and greenhouse and hothouse areas and equipments which are produced or which are used on each farm.

In order to ascertain the timber and lumber resources of each farm, three forestry questions are asked: The number of acres of merchantable timber, consisting principally of trees of saw-log size; the value of all forest products of the farm at the date specified which have been sold or are for sale; and the value of all homegrown forest products which have been or will be used on the farm.

Nebraska has a special copyright law for farm names and these names appear on the letterheads of hundreds of its stock raisers and farmers.

Bureau of Crop Estimates Covers Wider Field Than Most People Have Realized

While the public has some idea of the functions of the Bureau of Crop Estimates of the United States Department of Agriculture, inquiries frequently received indicate that many persons still have little conception of the great field covered by the bureau. The scope of information contained in several crop reports of the bureau may be indicated under the following heads: Cereals, forage (grasses), fruits, vegetables, live stock, and miscellaneous.

In the case of many of the subjects listed below, the bureau undertakes to estimate crop condition several times during the season. Thus from May until October the condition of from 20 to 30 products is reported on monthly. In December more than a score of final estimates, including acreage, production, and values, are issued, and on the majority of the products the prices are supplied each month throughout the year.

Mass of Information Furnished

Under cereals the bureau furnishes a great mass of information at various times in the year concerning the condition of barley, buckwheat, corn, oats, rye, and spring and winter wheat. The estimates regarding forage crops include alfalfa hay and alfalfa seed, clover hay, clover seed, field peas, tame hay and wild hay, grain sorghums, etc., meadows, millet, pastures, and timothy hay. The subheadings under fruits are even more numerous, there being 16 in all, including apples, cantaloupes, grapes, lemons, oranges, pears, and prunes. Ten different vegetable products are reported on at various times of the year; namely, dry beans, lima beans (California), cabbages, cauliflower (California), celery (California), field beans, onions, potatoes, sweet potatoes, and tomatoes. The live stock estimates include in most cases the condition of the stock, losses from diseases, losses from exposure, the number of animals, and prices at certain seasons. Figures are compiled regarding horses, mules, milch cows, and other cattle, sheep, lambs, swine, and colonies of honey bees.

Reports of farm prices are also obtained monthly for butter, eggs, chickens, milk, veal calves, timothy seed, cotton seed, cottonseed meal, and bran; for soy beans in January, February, October, November, and December; for black walnuts, hickory nuts, pecans, and turkeys in January, October, November, and December; for turnips and pop corn in January, February, November, and December; for maple sugar and sirup in March, April, May, and June; and for chestnuts in October, November, and December.

REMEDIES FOR AVERTING DIMINISHING TIMBER SUPPLY

Col. Graves, Chief of Forest Service, Addresses Tri-State Forestry Conference

Problem Consists Essentially in Stopping Destructive Fires, Natural Reproduction After Logging, and Restocking Waste Lands

Explaining before the Tri-State Forestry Conference how the United States is rapidly exhausting its timber resources, and at a comparatively early date may find itself largely dependent upon foreign sources, Lieut. Col. Henry S. Graves, chief of the Forest Service, U. S. Department of Agriculture, told the remedies that can be applied, and the measures that can be adopted, particularly in Indiana, Ohio, and Illinois, the three States for which the conference was held recently in Indianapolis, Ind.

"The solution of our forestry problem," said Col. Graves, "consists in stopping destruction by fire and other agencies, by using methods that make possible natural reproduction after logging, and by restocking the tree growth of lands that have been made economic wastes. The fear has been expressed by some that such an objective conflicts with the expansion of agriculture and stock raising. Exactly the contrary would be the result. No sane program of forestry would propose the use of lands for forestry that are better adapted to agriculture and settlement. Forestry, agriculture, and stock raising go hand in hand.

Farm Woodlands Problem Simple

"In Illinois, Indiana, and Ohio our problem is essentially one of the farm woodland. Here we have to do with small tracts and operations. In some ways the problem is a simpler one than in the great lumber regions. In the first place the fire danger is easily controlled. Then again the work can usually be brought into close correlation with other phases of farm management. Of great value, also, is the fact that the owner himself is often the manager and can give personal direction to the work of forestry.

"In such circumstances the aid of the States may be directed to showing the farmer how to cut his woodland in order to secure natural reproduction, how to thin the young stands so as to increase their growth and value, how to reforest the lands now waste, how best to market his woodland products, and so on. Advice should be afforded through the State forester and the agricultural field agents. Planting stock should be offered at cost with assistance in establishing successful plantations. Cooperative marketing enterprises should be encouraged when this is practical."

Discussing the function of the Federal Government in meeting the forestry problem, Col. Graves said, "The Federal Government has not given adequate assistance to the States. Direct aid to the States by the Government, made contingent on adoption by the former of acceptable programs of forest legislation and administration, would help to secure concurrent action in different States, enable the standardization of methods, and enable the achievement of results impossible without such aid.

"The first step in inaugurating a national policy of forestry is a Federal law providing the authority to cooperate with the States in formulating and carrying out a program of forestry, and carrying an appropriation that can be used to assist such States as inaugurate and put into effect a program determined to be adequate by the Secretary of Agriculture. A great deal can be accomplished pending such substantial cooperation, but with the aid that the Nation might offer, results that otherwise would be impossible could be accomplished."

Pressing Need of Home-Grown Forests

The forest situation, Col. Graves pointed out, is of peculiar interest to Indiana, Illinois, and Ohio. All three States have a pressing problem of producing home-grown forests. They are also vitally concerned in the forest situation in other parts of the country, for they are large consumers of lumber and other wood products and the greater part of what they use already is brought in from other States.

"Illinois, Indiana, and Ohio," he said, "together with the neighboring portions of Michigan and Wisconsin, constitute the most important center of manufacturing industries in the country—that is, the industries making vehicles, furniture, railway cars, tools, planing-mill products, and the like. About one-third of the total capital invested in the wood-manufacturing industries of the country and about one-third of the wage earners in these industries are found in this section. They use 5½ billion feet of lumber a year, or about a quarter of the aggregate used in this country for such enterprises.

"To-day the home product does not nearly meet the annual requirements, but, further than that, the cutting that is done far exceeds what is grown each year. It is probable, from the best estimates that I have been able to secure, that the annual growth of material of potential value in the three States is not over one-quarter of what is cut each year. This means that the forests are progressively losing ground with considerable rapidity.

"This deficit is due only in part to the clearing of land for agriculture. It is due also to the failure to handle the lands in a way to secure good reproduction and properly to protect the young trees that become established. With better care and management the forest lands of these States should yield two or three times the present growth, and this would, I believe, be possible without checking the extension of cultivation over lands suited to that purpose. There are many convincing reasons why these States should produce as much as possible in the way of forest growth from land that is best adapted to that purpose—and in the aggregate these areas amount to a great deal."

GRAIN-DUST EXPLOSIONS LITERATURE

Two publications have recently been issued for free distribution by the Bureau of Chemistry, United States Department of Agriculture, in cooperation with the United States Grain Corporation, to further the campaign against grain-dust explosions. One of these, a 12-page pamphlet entitled "Just a Word About Grain-Dust Explosions," gives the figures concerning appalling losses due to dust explosions from March, 1916, to October, 1917, and the very small losses in the succeeding 20 months. This decrease, the pamphlet explains, was due to the fact that all men connected with flour mills, cereal mills, and grain elevators had learned to exercise greater care, and protective apparatus had been installed by owners of the plant. The pamphlet is illustrated.

A second publication is in the form of a folder in which are reproduced four photographs, each telling a story so vividly that only brief textual comment is necessary. The titles of the four pictures, three of which show destruction due to grain-dust blasts, are: "Loss of Property," "Loss of Life," "Loss of Food," and "Loss of Job."

The fourth picture shows a tombstone bearing this inscription: "To the Memory of Those Who Lost Their Lives in Dust Explosions." The United States Department of Agriculture will send, free, copies of these publications to all persons in any way interested in this crusade for greater safety in grain-handling plants.

MANY CITIES ARE TACKLING THEIR LOCAL FOOD PROBLEMS

Produce Sold to Public at Retail from Municipal Farm

One City Operates Stalls in Competition with Retailers—Pays Higher Wages and Saves Consumers Money

That municipalities are tackling their local food problems in a variety of ways, some of them unusual, is evidenced by reports received by the city marketing division of the Bureau of Markets, United States Department of Agriculture.

From establishing curb markets, remodeling, or building retail market houses, efforts of cities have expanded until some are actually selling food supplies, while one city of about 65,000 population is operating a farm and selling produce from it at retail.

How One City Sells Food

Houston, Tex., which has a municipally owned retail market house, has taken over three stalls in the building and is handling fruits and vegetables in competition with its tenants. In order to be fair to other retailers it charges itself with all overhead expenses paid by other dealers, including rent, and also pays wages higher than those paid in other stalls. Reports on 10 weeks operation of the city-managed stalls show that it is possible to buy and sell produce in competition with local merchants at both a direct and indirect saving to consumers. The experiment is to be enlarged to include food products other than fruits and vegetables and is said to be already serving as a stabilizing influence on prices in that city market. Competing merchants have become interested in the methods of doing business of the city-operated stalls and appear anxious to try out practices that would enable them to lower their prices.

A City Goes Into Farming

Allentown, Pa., has gone into farming on a farm acquired for other purposes which, through changes in municipal plans, was lying idle. Under the direction of one of the city aldermen this farm is producing vegetables and selling them at retail in competition with shipped-in produce. The farm also feeds 1,000 head of hogs on city garbage. Local advocates of the plan now propose to include the use of an old brewery as a storage warehouse for potatoes and other products grown by local farmers, so as to lessen the city's dependence on shipped-in products.

Although the Bureau of Markets, through its city marketing division, is keeping in touch with developments in many cities and is compiling information for use in answering inquiries, it states that it would be glad to hear from any cities, not as yet reached by formal inquiries, which are working on local food problems through municipally-owned shops and by other methods differing from those that have been followed in the past. The bureau plans to make available information in regard to the successes and failures of cities in their efforts to solve their food problems in order that municipalities contemplating special action may have the benefit of the experience of communities faced with similar conditions.

MOVIES WILL DEPICT GRAIN-DUST EXPLOSIONS

Free movies of an unusual character and small handmade explosions are to be made features of a series of special meetings, open to the public, to be held in the principal cities of the grain section of the country, under the auspices of the United States Department of Agriculture and the United States Grain Corporation, in an effort to check carelessness, which of late has resulted in great losses of life and property due to grain-dust explosions.

Something decidedly new in the way of movie thrills will be shown in a film which depicts a large demonstration explosion. This blast was staged by explosion experts to show the tremendous explosive power of grain dust and starch dust. It proved so unexpectedly violent that it partly wrecked the steel cylinder 225 feet long in which the dust was touched off, and almost put the operator of the movie camera out of commission. No views of this sort have even been filmed before, it is said. In addition to the motion pictures, representatives of the Federal Government will talk on the cost and prevention of grain explosions. One of the speakers will give an actual demonstration by setting off a small quantity of grain dust in a portable model of a grain elevator. The detonation is said to be just sufficient to rattle the windows, but does not involve any hazard whatever for the audience.

Special representatives of fire-insurance interests will be invited to be present at the meetings, as well as officials representing the city fire department and delegates from the leading grain interests of the locality. The public is invited to attend.

One of the startling facts that will be brought out, as showing the need of vigilance in the matter of explosion prevention, is that five terrific grain blasts have occurred since last May, causing a loss of 70 lives and property valued at $6,000,000, besides large stores of grain. This record is in marked contrast to that of the war period, when for 20 months no explosions occurred—evidence of the value of special vigilance.

HOME TANNING OF SKINS

When it is desired to preserve the skins of wild animals which have been shot or trapped, these may be tanned either with the hair on or off, as desired. Hair can be removed from hides by soaking them in tepid water made alkaline by lye or lime. The following recipe for a tanning liquor is furnished by the Biological Survey of the United States Department of Agriculture: To each gallon of water add one quart of salt and one-half ounce of sulphuric acid. This mixture should not be kept in a metal container. Thin skins are tanned by this liquor in one day; heavy skins must remain in it longer. They may remain in it indefinitely without harm.

When removed from this liquor, the skins are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle, hung lengthwise over a line, hair side out, and left to dry. When both surfaces are barely dry, and the interior is still moist, they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn flat file, or a similar blunt-edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry. If parts of a skin are still hard and stiff, the soaping, drying, and stretching process is repeated until the entire skin is soft. Fresh butter, or other animal fat, worked into skins while they are warm, and then worked out again in dry hardwood sawdust, or extracted by a hasty bath in gasoline, increases their softness.

Lumber prices have been rising with more or less regularity for a long period. The suggestion in this for farmers is that in numerous instances the rough cut-over tract which the owner had planned to allow to lie idle or to clear for cultivation may be more profitably employed as woodland, says the United States Department of Agriculture.

KEEP FARM WATER SUPPLY FREE OF CONTAMINATION

Clean Ground and Wide Separation from Impure Drainage Essential

When in Doubt As to Depth and Quantity and Quality of Water Likely to Be Encountered, Consult Authorities

There is Scriptural authority for the statement that bitter waters and sweet do not flow from the same fountain. The same truth applies to wells on the farm. The family that uses a well or spring subject to contamination is almost surely destined to taste the dregs of sorrow or suffering for having drunk its disease-laden output. Investigations made by the United States Department of Agriculture indicate that only a small minority of farm-water supplies can be classed as unqualifiedly safe and desirable. On the average three out of four farm wells are located within 75 feet of a back door of the house and in the direction of the barnyard.

That convenience and first cost, not safety, have been the deciding factors in such cases is made evident by the nearness of barnyards, pig pens, pastures, fertilized fields, sink drains, privies, cesspools, and areas rendered insanitary by chickens, slops, and other filth. Too frequently the seepage from these and other sources, after joining the ground water, moves to wells and springs, impairing the water supply by impurity that may be grossly poisonous.

Sewage Disposal

Popular indifference to the effective disposal of sewage has existed so long and so universally that only within comparatively recent years has it been realized that this waste product of human life is poison and must be kept from the food and drink of man. From the specific germs or poison that may be carried in sewage at any time there may result typhoid fever, tuberculosis, hookworm disease, cholera, dysentery, diarrhea, or other dangerous ailments, and it is not improbable that certain obscure maladies may be traced eventually to the poisonous effects of drainage from human waste. The poison is invisible to the naked eye and it may be carried by many agencies, by devious routes, and be unsuspectingly received into the human body. Typhoid fever is peculiarly a rural disease, and many instances clearly indicate serious neglect of responsibility with regard to sanitation by people who live in the country.

Not to dispose of sewage promptly invites nuisance, but not to dispose of sewage cleanly and completely invites disease. It is not enough that human filth is taken 50, 75, 100, or 150 feet away from a well or spring, or that it is taken merely to lower ground. Given loose or open subsoil, seamy ledge, or long-continued pollution of one plat of ground, the zone of contamination is likely to extend and readily may reach quite distant wells, especially at such times as well waters are lowered by drought or heavy pumping. Whatever the system of sewage disposal, it should be entirely and widely separated from the water supply, and, if possible, the surface of the sewage in any leaky privy, vault, or cesspool should be lower than the lowest water in any near-by well. The United States Department of Agriculture has prepared Separate No. 712, from its 1916 Yearbook, entitled "Sewage Disposal on the Farm," which gives details regarding various type of outhouses, suggestions regarding plumbing, cesspools, septic tanks, and related subjects. This pamphlet will be mailed free on request.

Pure, Easily Obtainable Water, the Need

One of the first and obvious needs of American farms is pure water supplies. From the standpoint of the housewife, second only in importance to purity, is the installation of a water system in the farm house that will save labor.

Continued pumping will not improve water in a well if the sources which feed it are permanently at fault. Wells can not be located in all cases to be wholly free from pollution, but the greatest safeguards are clean ground and as wide separations as possible from the probable channels of impure drainage.

Water for domestic use should be clear, lustrous, odorless, colorless, wholesome, soft, neither strongly acid nor alkaline, and its temperature for general farm purposes should be about 50 degrees. These characteristics, however, are never proof of purity, for a glass of water may possess them all and yet contain millions of disease-producing germs.

Ground water is the ideal supply for the farm. Any farmer who is about to have a deep well, and who is uncertain of the depth and quantity or quality of the water likely to be encountered, should describe fully the location and condition of his project to National or State geological authorities and ask for advice. The use of the willow, hazel, or peach stick for locating underground water is without merit, although "forked-stick" artists from experience often are better able to judge the probabilities of ground water than the average person.

Kinds of Wells

Wells are spoken of as shallow or deep, dug, bored, driven, or drilled, and in the case of tubular wells, as nonflowing, flowing, or artesian. Persons interested in the various types of wells and their construction, advantages, disadvantages, etc., will find the subject treated in Farmers' Bulletin No. 941.

Wherever possible, the farmhouse should be fitted with some sort of running-water system, simple or elaborate, according to the investment the owner is able to make. For such systems water may be raised by natural flow, hydraulic rams, pumps, air lifts, or air-displacement pumps. Hydraulic rams are the most economical water-lifting devices. Since rams of various sizes and makes perform differently, it usually is necessary to accept the mechanical details determined by the manufacturer. The minimum, never more than the average, flow of the spring should determine the size of the ram. Otherwise, the one selected may be too large for the dry-weather flow. Small flows may be determined by noting the time required to fill a vessel of known capacity. Larger flows may be determined by weir measurements.

Where the water supply is far from the ram site, it is usual to pipe the flow to an open tank or reservoir located so as to secure the desired length and fall of drive pipe. Sometimes the flow of a spring is too small to actuate a ram that is sufficient for domestic requirements. In such instances and where a near-by brook can be dammed to obtain the necessary power head, the recoil of the ram may be employed to admit the spring water, which is pumped by the fall of the brook water in the drive pipe.

Motion of water produces friction, which increases with the length and roughness of the pipe and the rapidity of the water's movement. Hence, wherever much water is to be delivered through a long pipe the power or head necessary to overcome friction should be determined. The bulletin mentioned before (Farmers' Bulletin No. 941) contains a table which shows the friction head; that is, the number of feet to be added to the vertical height for each 100 feet of iron pipe (not new) to overcome friction when discharging given quantities of water.

Selection of Pump

In selecting a pump one should determine the kind of well to be used, its inside diameter, depth to the bottom, the depth cased, depth to the water level, both when the pump is at rest and in

operation, and the maximum yield. The maximum quantity of water required per day should be calculated also. One should also determine the distance from the well to the proposed location of the pump and the vertical height between these points; likewise the distance from the pump to the reservoir or tank and the vertical height between these points. The kind of power to be employed should be settled upon also—hand power, windmill, gasoline or oil engines, or electric motors—and the method of transmitting the power.

Farm pumps usually are of the suction, lift, force, deep-well type or some combination of these. Suction and lift pumps do not raise water above the pump nor discharge it under pressure. Suction pumps require the cylinder to be above the water level of the supply. If a perfect vacuum could be created within the cylinder water could be raised vertically by suction 33.9 feet at sea level. However, the actual suction lift is usually not more than two-thirds of the theoretical lift. Methods of making tight joints are described in the bulletin referred to.

Horizontal suction pipes may extend long distances, providing the friction loss plus the vertical height from the water level to pump valve does not exceed the limiting suction lift. Where a pump can not be placed so that the limiting suction lift will not be exceeded, it is necessary to lower the pump cylinder into the well, raising the water from the cylinder to the spout by the direct lift of the piston. Water can be pushed more easily than it can be pulled, hence, rather than resort to extreme suction lifts it is preferable to lower the cylinder to within 15 feet or less of the supply, or still better, to submerge it.

Where water is discharged against pressure a force pump is necessary. A practical installation for the kitchen sink is a combined suction and force pump which will be found a great labor saver for the housewife.

Deep-Well Pumps

Deep-well pumps are heavier and stronger than those described above. They may be of the lift or force type and the standard or working head is always directly over the well. The cylinder should be near (within 15 feet) or else below the lowest water level which pumping and drought may create. Submergence is the preferable arrangement. In all installations the size of the pumping cylinder must be determined from the size, depth, and yielding power of the well, the quantity of water required, and the available power. Deep wells and hand or windmill outfits take small cylinders.

Pumping by means of compressed air is very old, but the systems used prior to 1909 required the air supply to be turned on or shut off according to whether or not the water was needed. Based on a patent granted in that year, a two-cylinder air-displacement pump submerged in the water supply and controlled by the opening and closing of the faucet, was devised. The essential parts of installation, besides such a pump, are an air compressor, storage tank, engine or motor—with air and water pipes, and minor attachments. The pump operates only when water is used, starting whenever a faucet is opened and continuing until all faucets are closed.

The chief advantage of air-displacement pumps is that water may be taken from ordinary depth or lateral distance, or from several sources, with one power outfit and delivered direct from the well to the faucet. The power plant may be located wherever convenient and as many pumps may be used as there are sources of water. Both hard and soft water may be delivered by using two pumps and the necessary piping systems. Air-displacement pumps are not adapted at present to lifts much over 125 feet or to wells less than three inches in diameter, nor can they be used where more water is required than the well can supply within a specified period. Air pipes and air-displacement pumps must be tight and remain tight in service, and working parts must be kept in good order.

Horsepower Needed

Water may be raised by hand, windmill, hydraulic rams, steam, hot air, gas, internal-combustion engines, or electric motors. Hand power is unsuited to large supplies or high lifts. Windmills are probably the most familiar type of mechanical power used, and often are arranged to start and stop automatically. Gasoline and oil engines are well adapted to farm pumping, and may be equipped to stop at any desired pressure in a supply tank. The use of electricity for pumping is increasing. The method is clean, quiet, and convenient, and starting or stopping a distant pump by throwing a switch may be practical wherever transmission lines are sufficiently near.

The theoretical horsepower needed to raise water is found by multiplying the gallons pumped in one minute by the total lift, in feet, including friction in both suction and discharge pipes, and then dividing the product by 4,000. The horsepower as computed should be multiplied by from 2 to 4 to overcome losses in pumping and still allow for a reserve of power. Ordinarily one to two horsepower engines are sufficient for farm pumps, but it is always safest to determine this point by computation.

An advantage to be derived from the well-installed farm water system often overlooked is the benefit it affords in the way of fire prevention. With relatively small expenditure, fixtures can be added to a pipe system, which give ready access to the water supply for fighting flames. In almost every case a fire can be easily put out if discovered at its early stage, providing there is fire-fighting apparatus near by, and all hands, even the children, are taught and drilled to use such apparatus coolly and skillfully.

MARKETING ACCOUNTING COURSES

Accounting systems for marketing organizations, prepared by the Bureau of Markets, United States Department of Agriculture, are to form the basis of courses in marketing accounting at 26 colleges next year. These accounting systems have been prepared for use in country grain elevators and creameries. Their value has been demonstrated by 800 actual installations.

The bureau is preparing text material which will be available by the middle of December. It may be obtained by colleges free of charge for the first year upon application to the bureau.

Although at present the text material is confined to work in creameries and country grain elevators, the Bureau of Markets has worked out systems for other lines, including cooperative fruit organizations, cooperative stores, livestock shipping associations, and cotton warehouses. Bulletins on accounting systems for commission houses, cold-storage warehouses, and milk-distributing plants are being prepared.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended November 1, 1919:

The San Jose Scale and Its Control. Farmers' Bulletin 650.

Cattle-fever Ticks and Methods of Eradication. Farmers' Bulletin 1057.

Unfermented Grape Juice: How to Make It in the Home. Farmers' Bulletin 1075.

The Production and Conservation of Fats and Oils in the United States. Department Bulletin 769.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Airmen Perform Excellent Service in Work of Controlling Forest Fires

At the conclusion of the first season in which aviators have maintained an organized fire patrol in the United States, the officials of the Forest Service, United State Department of Agriculture, state that the record made by the airplane has proved beyond question its effectiveness as an aid in discovering and locating forest fires.

This new flying undertaking was performed by the Air Service of the War Department, with its personnel and equipment, and at the expense of that organization. For three months uninterrupted service was maintained, and a total of 745 flights covering 92,605 miles were made. Many fires were discovered, located, and reported in advance of the regular Forest Service detection organization.

Six patrol routes covering national forest areas of high value in California were followed, and twice each day six Curtis airplanes covered the better part of 9,000,000 acres of rough, mountainous, heavily timbered country. The average nonstop run was 160 miles; the average round trip, 320 miles.

Patrol Extended in Hunting Season

With the opening of the hunting season in the middle of the second month of daily flying above the forests, the fire situation in northern California became critical and an extension of the air patrol was asked. This was one of the principal factors necessitating a complete reorganization of the whole air patrol in California. De Haviland planes were substituted for the slower planes of smaller gasoline capacity and less climbing power. Two new bases were established. New daily routes were laid out, one of which covered 560 miles, and the service was extended from the original 5 to 15 national forests in California.

Beginning September 1, eight airplanes covered twice each day more than 16,000,000 acres of national forest, and, incidentally, 5,000,000 acres of privately owned timber lands. Eight additional airplanes were used on alternate days to allow for necessary repairs and relief of pilots. Sixteen pilots and 22 mechanics were assigned to the work. Up to the first of October only six forced landings, with one fatality and no injuries to pilots or observers, occurred. Damage to the airplanes, considering the number of miles covered and the rough country patrolled, was negligible. No figures as to the cost of the experiment have been made available.

In the discovery of fires the air patrol showed itself 85 per cent efficient and it is declared that it can be made practically 100 per cent efficient, either by providing for a longer period in the air or possibly by making the time of flight correspond more closely to the hours of the day when the largest percentage of fires start.

Experience shows that while the effective "discovery radius" varies with atmospheric conditions and the height of the observer, an observer at an altitude of 5,000 feet can detect a fire at least 30 miles distant.

Difficulty in Reporting Fires

Though experience and familiarity with the country are important factors in accurately determining the exact location of fires, wonderful results were obtained by pilots entirely new to the region but equipped with such maps as were available. One lieutenant, flying a De Haviland over an entirely new route, placed within one-half mile of its actual location a 200-acre fire that was 35 miles away. To see it he had to look almost directly into the sun.

On a whole, the reporting of fires—as distinguished from discovering and locating them—was not so satisfactory.

Parachutes with messages attached, which were occasionally used, proved to be uncertain. Carrier pigeons released in the air and reports made by telephone and telegraph after landing were found to be too slow to insure best results.

It is believed that the wireless, preferably the wireless telephone, offers the solution of this difficulty in the air-service fire patrol.

Without wireless or some other method of hastening the reports, the airplanes can never function as efficiently as the present lookout system, say the Forest Service officials. In the matter of procuring reports of the progress of fires already known to be in progress, it has been found entirely practicable to get quicker, more complete, and more satisfactory reports by means of the airplane than by any other method so far tried. This applies either to small, widely scattered fires or to large conflagrations.

It seems possible that the use of airplanes has been beneficial also in lessening the number of fires. One valley in southern California until this year has been the scene of repeated devastating fires, due no doubt to carelessness. With airships flying overhead twice daily, the valley has been without fires. The moral effect of the air patrol is credited with the change.

As a result of this season's record a request has been made for continuous daily airplane patrol of all the national forests in California.

Bituminous Surface Treatment May Be Good for Farm Roads

Owners of large farms and rural estates seeking a more satisfactory type of entrance roads have applied to the Bureau of Public Roads of the United States Department of Agriculture for advice regarding the application of bituminous material on main entrance and much-traveled farm lanes.

The bureau's engineers point out that such applications may be made successfully on any farm road which has already been constructed of stone, gravel, or other similar material and is in a thoroughly compacted and reasonably smooth condition. A coal-tar preparation applied cold, or an asphaltic oil, can be used, and if applied by the farm employees, the cost should not exceed 7 or 8 cents a square yard for materials. The compacted gravel or stone road should be thoroughly cleaned of dust and the bitumen applied with ordinary sprinkling pots from which the perforated nozzle has been removed and the spout carefully flattened into a symmetrical rectangular opening about one-quarter of an inch wide, so that the material may be poured in a broad, flat stream.

If a large amount of work is to be done, a specially designed pouring can may be purchased of dealers in road equipment. Care should be taken to have an even distribution, and the quantity applied should be approximately one-half gallon to a square yard of road surface. After applying the bituminous material, clean gravel or stone chips should be spread evenly over the surface, and, if possible, rolled with a lawn or field roller. Where gravel or chips are not available, clean, coarse sand will serve as covering material. It should be spread in sufficient quantity to prevent the bituminous material from adhering to tires of passing vehicles. Attention is called to the fact that this treatment should not be made where drainage from the stables or barns will flow over it. Where mudholes are likely to form around hitching posts or at stable entrances, if a more durable pavement is desired, a section of concrete slab should be laid.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

STANDARD TRADE TERMS INDORSED BY DEPARTMENT

A set of 28 rules and definitions of terms used in the fruit and vegetable trade has been worked out by four of the largest produce trade organizations. It is an outgrowth of the cooperation of these four organizations with the Food Administration and the Bureau of Markets of the United States Department of Agriculture. Included are definitions of "To-morrow's shipment," "To-day's shipment," "F. O. B. sales or quotations," "C. A. C. sales," and "Minimum and maximum loading."

Wide adoption of these rules and definitions will mean fewer misunderstandings between shippers and receivers, and the Bureau of Markets therefore urges that they be adopted by all individuals and firms handling fruit and vegetables.

While the Bureau of Markets has indorsed these rules and definitions, they are not contained in any department publication. The trade organizations which have adopted them, and from which printed copies may be obtained, are: National League of Commission Merchants of the United States, International Apple Shippers' Association, Western Fruit Jobbers' Association of America, and American Fruit and Vegetable Shippers' Association.

PRICE OF HOPS INCREASES DESPITE PROHIBITION LAW

Hops, after all, are not to die with John Barleycorn. This crop encountered an increasing number of States with laws prohibiting the manufacture and sale of brewed liquors, the national law prohibiting the interstate transportation of such liquors, the war-time prohibition, and lastly the amendment to the Constitution.

The area devoted to hops declined from 44,700 acres in 1915 to 27,900 acres in 1918 and 26,900 acres in 1919, and the production dropped from 53,000,000 pounds in 1915 to 20,200,000 pounds in 1918. The war, too, reduced hop exports to a low figure. One large producer of hops in California took steps in 1918 to replace the apparently doomed crop with a large business in dehydrating vegetables.

The extremely low price of 12 cents a pound to producers was reached in December, 1916, and the December price of 1918, although 20 cents, was still low. On the contrary, in the autumn of 1919 a market of unprecedented buoyancy was created, mostly by British buyers, who, according to commercial reports, paid very high prices for the new crop and were glad to get old hops. The average price to producers, September 15, reported by the Bureau of Crop Estimates of the United States Department of Agriculture, was 56.6 cents. Nearly all of the crop is raised in New York, Washington, Oregon, and California.

GIRL PROVES SIMPLICITY OF FEDERAL GRAIN GRADING

There are people who have said that the Federal grain grades are complicated and difficult to master, but Ruby Peterson, war emergency messenger girl in a flouring mill in Seattle, did not find them so, particularly. Six months after she took the job of carrying samples back and forth between the laboratory and the office she was a person of importance in the establishment, and was making all the tests and analyses on grain samples to check the licensed inspectors' grades. Long before that she was making separations on samples of mixed wheat to study under the tutelage of the mill manager the identification of classes of wheat. Later she likewise made separations on damaged wheat to study the grading factors of the standards. Then she began making all the mechanical determinations for the manager, such as weight per bushel and moisture test. Then she was graduated to the big job of checking, under the supervision of the manager, the inspectors' grades on all wheat received at the mill.

The United States Department of Agriculture calls attention to this case, not particularly by way of throwing bouquets at the girl, but by way of illustrating what the department has always contended, that the principles of the Federal standards and the essential features of inspection procedure under them are simple enough, especially on country run grain, for any farmer or country grain buyer to understand and apply.

The mill manager checks the inspectors' grades on the wheat received at the mill and appeals to the Federal Grain Supervisor on all misgraded cars.

"What impresses us most," says the manager, "is that it is possible now to get the true grade on a car of grain. Under old conditions we used to look at a sample and guess at the grade, and, while we were more or less proficient at guessing, yet we find by analyzing as we do now that a great majority of our guesses were out of line. We find, too, that it is very easy to apply the Federal standards. The young woman who assists with this work had never seen any grain before she took up the work, and we soon found she was able to analyze the samples in a comparatively short time."

RESTRICTING USE OF BORAX INSURES SAFETY TO CROPS

The Department of Agriculture has investigated the damage to crops attributed to the use of fertilizer containing high borax-potash, and has traced in important instances this potash to the product of Searles Lake. In order to permit the safe use of this product in future the department has, under authority of the control act of August 10, 1917, decided to place such restrictions on the use of potash salts containing borax as will guarantee the use of an application of not more than 2 pounds of anhydrous borax per acre. In order to effect this measure of safety the department has issued instructions to the producers of potash salts at Searles Lake and to all brokers, fertilizer manufacturers, and mixers not to sell potash salts direct to farmers as straight goods when they contain more than five-tenths of 1 per cent of borax, and not to sell mixed fertilizers containing more than 2 pounds of borax per ton unless the amount of borax contained is plainly shown upon the container.

This regulation is issued to insure that in no case shall a fertilizer application be made by farmers without their knowledge, which would add more than 2 pounds of borax to the acre. The department feels that such restrictions will make the use of potash salts from Searles Lake as safe under all conditions of agriculture as is the use of nitrate of soda, acid phosphate, and other fertilizer constituents.

Provide a Barnful of Chow for Bossie— She "Eats Heavy" but Pays Promptly

Bossie is one of the champion consumers of the universe, according to results of studies of the United States Department of Agriculture and Purdue University in the neighborhood of Porter County, Ind., where Uncle Sam kept tab for two years on the food requirements of about 368 cows that were producing market milk for Chicago. As cow living expenses have increased proportionally to those of the human family, these results are notable as an index to which the average dairyman or the owner of a family cow can refer in "doping out" the menus and amounts of feed which his animal or animals require.

The grand average maintenance and production ration for the good grade cow yielding about 7,000 pounds of milk a year included 2,046 pounds of grain, as well as 3,301 pounds of hay and corn stover, 7,276 pounds of silage, and 720 pounds of straw for bedding. The average cow required a little less than 1½ acres of good pasture to furnish grazing for six months of the year. To keep her in proper condition and to milk and feed her regularly required 164.5 hours of human labor, as well as 16.2 hours of horse labor to haul the milk.

The studies in Indiana showed that the annual overhead charges for Bossie aggregate $27.11, inclusive of the interest, depreciation, and taxes on buildings, cattle, and equipment, as well as miscellaneous expenses, such as provision and maintenance of cans, pails, dippers, shovels, forks, scoops, lanterns, and the like, medicine and veterinary costs, fly sprays, gas engines, windmill and milk wagon repairs, and similar items. The cost of bull service, tuberculin-testing expenses, and cow-testing dues are also included.

The tests show that a calf crop of approximately 87 per cent is usually raised, so that each cow is credited with the production of 0.87 of one calf, as well as the providing of 6.8 tons of manure, which is hauled to the fields as fertilizer.

Massed together under one roof, the grain and coarse feed which Bossie will eat in one year would fill a small barn. Generally speaking, high production of milk is closely associated with a large and healthy cow appetite, and the dairyman who closes his accounting records at the year's end with the maximum net return is the man who provides the greatest variety and a proper mixture of the goodies of the cow world for the bossies of his herd according to their individual production and capacity.

GUESSWORK ELIMINATED IN GRAIN-GRADING WORK

"What is the use of the laboratory tests in grading wheat when an experienced grain man can tell the grade at a glance?" Perhaps an answer to this question can be found in a story of an actual experience in one grain supervisor's office.

The process of inspection was being explained to an elevator operator and one of his farmer customers who were visiting an office of Federal grain supervision. A sample of wheat which contained rye was being tested. They were asked to guess how much rye was in the sample. The farmer estimated three-fourths per cent and the elevator operator thought it was 1 per cent. In their presence a separation was made which showed the rye to be 3.7 per cent of the sample.

In handling grade appeals taken to the Federal grain supervisors, all tests are accurately made and guesswork is not practical.

SAVE BARNYARD REFUSE BY MAKING COMPOST HEAP

According to the United States Department of Agriculture specialists, the compost pile is a fertile source of valuable material for replenishing the plant food supplies of the soil. Proper utilization of the compost saves much fertilizing material which ordinarily is wasted on the average farm. The expense of making the compost heap is slight as compared with the fertilizing value of the resultant material. The essentials of the compost heap are to equip it with a water-tight foundation by puddling clay. This is done by spreading the clay 10 to 12 inches thick and then moistening and trampling it thoroughly. A framework of logs or lumber should be built up around the pile and increased in height as the compost heap is built higher.

A layer of leaves, straw, grass, or even weeds, about 18 inches in depth, should be placed over the clay foundation. Above this a layer of manure 5 or 6 inches deep should be distributed, and if raw rock phosphate is available, from 50 to 80 pounds should be scattered broadcast over the manure. Then another layer of manure should be added and the process continued. It is essential to keep the pile of refuse moist by sprinkling it frequently. It is also necessary to keep the compost heap well packed and tramped. Ordinarily it takes about a year for the stable refuse in a compost heap to rot sufficiently for use, when it should be spread on the land in the late fall. Thereupon, another pile should be started. The fundamental value of the compost pile comes from the fact that the manure is thoroughly rotted and its plant food content is in excellent condition for immediate soil use when applied to the fields, while during its period of decomposition it is maintained in excellent condition to resist leaching and weathering.

RACES AND MIDWAY NOT NEEDED

Seviersville, Tenn., had a unique county fair this year. It was held in the courthouse, and although without a speech, race, or "midway," it was a success from start to finish.

Seviersville is the county seat of an agricultural county with large lumber interests. A variety of agricultural products can be grown there and all kinds were exhibited at the fair. Twelve communities installed exhibits in the courthouse and in the court yard. The fair was planned and directed largely by the home-demonstration agent of the county. The people came in thousands and packed the courthouse and yard and overflowed into the adjacent streets. Every agricultural phase of the country was represented and the exhibits were excellent in variety and quantity. Although there was much good-natured rivalry among communities, there was also a good get-together spirit. Before the fair ended the exhibiters had decided to make a county exhibit at the Knoxville fair this fall.

The first car of No. 1 black oats to arrive in Chicago this season sold at a premium of 1 cent over No. 1 white.

That officials in every stock-raising county in the country should take a census of the sires in their respective territories, so that the elimination of scrub sires may be carried on systematically, is a suggestion which has been made recently on behalf of various livestock interests as a result of the agitation for better sires instituted by the United States Department of Agriculture.

Lack of Sugar to Supply Nectar to Bees May Seriously Affect Honey Production

In certain parts of the country, especially in the white-clover region, there has been a lack of nectar during late summer and fall, and many colonies of bees are not provided with enough stores to last through the winter and to enable them to build up properly next spring. This lack is especially deplorable just now because of the bright outlook for good honey markets next year. Bee keepers whose bees are not adequately provided with good honey stores in abundance should do their utmost to get granulated sugar from which a thick sirup can be made to take the place of the honey stores. Nothing but granulated sugar can be used with safety for this purpose.

The shortage of sugar makes it difficult to get sugar in quantity for feeding bees. Bee keepers east of Buffalo and Pittsburgh will be compelled to buy cane sugar, while those west of that line must use beet sugar. Either sugar is suitable for the purpose. The extension division of New York and the State Department of Agriculture of Pennsylvania are making arrangements to provide bee keepers of those States with sugar. In other eastern States bee keepers will find it difficult to get sugar unless they can combine with others to buy in car lots. Bee keepers west of Buffalo should attempt to buy sugar direct from beet-sugar refineries. Every effort should be made to get sugar, for it will be a great loss if the bees are allowed to die of starvation.

Directions for Winter Feeding

For the many bee keepers who are unable to get sugar at this time it will still be possible to save the bees by feeding a thick sirup of granulated sugar at the very first of the spring brood-rearing, about the first of March in latitudes such as Washington; somewhat later farther north. This sirup should be fed hot and the winter packing should be replaced as soon as the sirup is given and the feeder left packed. Bees wintered in cellars in the far North should be fed as soon as they are removed from the cellar, or, if they are short of stores, sirup can be given not more than three or four weeks before they are removed to the outside stands. Directions for making thick sirup for fall or winter feeding are found in Farmers' Bulletin 695 of the United States Department of Agriculture. In providing stores of sugar sirup it is best to feed in one lot rather than to extend the feeding over several days. The department does not recommend the use of cakes of candy for winter feeding.

With scant winter stores it becomes unusually important to pack bees thoroughly for winter to conserve their stores as well as their vitality. Explicit directions for winter care of bees are given in publications which will be sent free on request to the United States Department of Agriculture.

SHOOTING BIRDS PERMITTED TO PROTECT FISH HATCHERIES

The Secretary of Agriculture has issued an order, effective October 24, 1919, permitting the shooting or trapping of grebes, loons, gulls, and terns, mergansers and certain species of the heron family, including the bittern, great blue heron, little blue heron, green heron, and black-crowned night heron, by owners, superintendents, and bona fide employees of public or private fish hatcheries throughout the United States and Alaska, where these birds are injurious to and destructive of fishes at the hatcheries. All of the above-named birds are given protection under the Migratory Bird Treaty Act, approved by the President July 3, 1918, but the Secretary of Agriculture may permit them to be killed when, upon investigation, they are found to be seriously injurious to agricultural or other interests. After thorough investigations at a number of fish hatcheries in various sections of the country, it was concluded that protection against these birds was necessary for the preservation of the fishes at the hatcheries.

Disposition of Birds After Killing

The order is very definite, and provides that every bird killed or trapped pursuant to the permission contained therein and every part of such bird, including the plumage and feathers, shall be totally destroyed as promptly as possible, and shall not be possessed, transported, or shipped in any manner outside of the grounds and waters of the hatchery where killed or trapped, except for the purpose of destruction, provided that such birds or parts thereof may be shipped or transported as a gift to public museums and public scientific and educational institutions. Provision is made that all packages containing such birds or parts thereof so shipped or transported shall be clearly marked, so that the name and address of the shipper and the nature of the contents may be readily ascertained on an inspection of the outside thereof.

INDIANS FAVOR BETTER SIRES

H. W. Murray, a farmer of the Fort Bidwell Indian Agency, in California, is a staunch advocate of better sires, according to information just received by the Department of Agriculture. In applying for enrollment in the Federal-State "Better Sires—Better Stock" campaign, Mr. Murray announces that since he took charge of the agency in July he has already sent to the block two scrub boars and has replaced them with a pure-bred boar. "I have always believed in raising the best, and hope the movement toward better sires will act like the proverbial snowball, get speed and size quickly, then stay frozen." The Fort Bidwell Indian Agency is a part of the United States Indian Service of the Department of the Interior.

AGRICULTURAL FOUR-MINUTE MEN

Recognizing that the average city man knows very little in regard to agriculture and that he is often unjust in his conclusions simply because he does not know the facts, the New York State Federation of Farm Bureaus has established a speakers' bureau which will furnish farmer speakers to go before clubs, conventions, and gatherings of business men and city folks, to give them briefly and in a clear and intelligent manner the farmers' viewpoint.

A milling company in Kentucky has asked for 2,500 copies of the handbook on official standards for wheat and shelled corn for distribution to its customers.

It is scarcely too much to say that a poor orchard is worse than none. Uncared-for trees are a source of loss to their owners and a menace to the neighbor's orchard that is kept in up-to-date fashion.

One grain dealer and bean jobber in Michigan, who, less than two years ago, was given a hearing regarding alleged violations of the grain standards act, has been so converted that he is now urging Federal supervision of bean inspection. The United States grain standards act authorizes the establishment of standards for grains only, and at the present time Federal supervision of inspections under the act extends only to wheat, shelled corn, and oats.

Milk, Egg Yolks, and Green Stuff Are Most Essential for Young Children

Some people tell us a great deal about what children ought not to eat, but forget to tell us what they ought to have. The kinds of food that children need to make them grow into healthy men and women are being studied by home economics experts in the United States Department of Agriculture.

The most important of these foods is milk. It supplies something for making muscles; something for making bones and teeth; and something that makes children grow. No child will grow as fast as he should or as well without milk. He may get fat, but fatness is not the same as strength. Unless he has milk, some part of him will almost surely be weak.

Every little child should have at least three glasses of whole milk every day, and if possible, four. If he has this amount of milk, and particularly if he can be given one egg yolk a day, he does not need meat. Some mothers worry because they can not afford to buy meat, fish, chicken, or other flesh foods for their children, but this is quite unnecessary if they are able to get milk, and milk is almost always cheaper than these other foods.

How to Serve Eggs

Some one will probably ask how the yolk of an egg should be served to a child. One good way is to add it to milk gravy. Another way is to cook it hard, salt and mash it and spread it on bread. The mother may just as well use the white of the egg for cake or for puddings. It is the yolk that the child needs most. All of the iron of the egg is in the yolk. There is something in the yolk, too, as there is in the milk, that makes children grow.

Every mother wants her children to have straight, strong legs. Both milk and eggs help to make the bones strong. Children who do not get these foods are almost sure to have a disease called "rickets." Their bones, being weak, bend under them and get very much out of shape.

Milk gets dirty easily and it is very hard to make it clean after it has become dirty. It is different from such foods as apples and oranges from which the dirt can be wiped. If milk is left uncovered and dust or other kinds of dirt fall on it, or if it is put into a dirty dish the dirt sinks to the bottom and it is impossible to get it out. Dirty milk is almost sure to make children sick, and so the greatest pains should be taken to keep it clean. The barn where the cow is kept should be clean; so, too, should the pails and the milker's hands. After the milk comes into the house it should be kept carefully covered in a cool place.

Use of Clean Skim Milk

Whole milk is far better for children than skim milk, but clean skim milk is better than dirty whole milk. If the mother can not get clean whole milk she had better use clean skim milk and give the child a little extra butter to make up for the fat that was taken off when the milk was skimmed.

The "something" in milk that makes children grow comes from the grass and other green things that the cow eats. The same "something" in eggs comes from the green food that every good chicken raiser provides for his chickens. From the green food it gets into the milk and the egg yolks. This substances, so much needed by all young animals, is also in lettuce, spinach, and other greens. For this reason these vegetables are good for children, particularly when milk and eggs are scarce.

Some children do not like vegetables and it does little good to try to persuade them to eat them. A better way is to put them into soups or gravies without saying anything about it. For example, make milk stews or gravies and put into them any small amounts of cooked vegetables that may be left over or some fresh vegetables cooked for the purpose. Here is a recipe for a milk stew. With plenty of bread, a large bowl of it makes a good dinner for a child.

Milk Stew with Vegetables

1 quart milk, whole or skim.
1 cup raw potatoes, cut in small pieces.
A few leaves lettuce, spinach, or other greens cut into small pieces or chopped.
A small piece of onion.
2 level tablespoons butter or bacon fat.
Salt.

Boil the potatoes till soft and drain. Cook the other vegetables in so little water that they do not need to be drained. Add to the milk. Heat, add the fat, and season with salt.

Almost any vegetable can be used for flavoring milk stews. Or a little fish or chopped dried beef may be used. In the case of very little children care should be taken not to serve any tough foods like large pieces of dried beef unless the mother has time to watch and see that they are well chewed.

Another way to use milk is in simple puddings.

Rice Pudding

1 quart milk, whole or skim.
⅔ cup rice.
⅔ cup sugar.
½ teaspoon salt.
⅓ teaspoon ground nutmeg, or cinnamon, or the grated rind of ¼ of a lemon.

Wash the rice thoroughly, mix the ingredients, and bake three hours or more in a very slow oven, stirring occasionally at first.

Any kind of cereal, oatmeal, corn meal, or cracked wheat can be used in place of the rice and molasses, or brown sugar can be used for sweetening and flavoring.

To say that a child does not need flesh foods like meat, chicken, and fish if he has plenty of milk does not mean that these foods are not good for him. The chief point is that they are not needed, and when used in addition to milk they are extravagant. So far as health is concerned some of the tenderer flesh foods, like fish or chicken, may be given in small amounts even to very young children. No child, however, should be given tough meat that is likely to be swallowed in large pieces. Fried meat is particularly harmful.

Use Fresh or Dried Fruits

Fruit once a day is a good rule. If you can not afford fresh fruit, get dried fruits. Soak them well and cook them until soft. If the child is delicate give only the juice or pulp. Very young children who are just beginning to eat other things than milk should be given the juice only of the fruits. A little later they may be given the pulp. A healthy child of school age can eat apples, peaches, and plums, skin and all.

Every child should have plenty of good bread. There is no danger of him eating too much of it unless it is covered with sugar or jam. A hungry child will eat plain bread between meals without either butter or sugar. Save the sweets for dessert.

Whole wheat or graham bread helps to prevent constipation. So, too, do vegetables and fruits. Mothers who can not afford vegetables and fruits should give coarse bread occasionally. Cereal mushes, like oatmeal, corn meal or cracked wheat, are good food for children; they have just as much nourishment in them as the ready-to-eat cereals and cost very much less. Hardness and crispness in food is not the same as toughness. In fact, hard bread or toast is good food for children. Bread that has been dried and slightly browned in the oven can be broken into small pieces and served with milk as cereal mushes are.

As to sweets, save them for dessert when the child is not hungry enough to

eat too much of them. One of the simple puddings mentioned above makes a good dessert. So, too, do plain cake or cookies. One of the cheapest sweets is bread spread with butter and sugar, white or brown. Lump sugar is usually far cheaper than candy.

Breakfast may consist always of fruit, fresh or dried, with a cereal mush, milk, bread, and butter. Bread and milk or rice and milk are enough for supper. The chief meal should come in the middle of the day. Here are a few suggestions for it:

Suggested Dinners

Baked potatoes.
Milk gravy made with bacon or salt pork fat.
Greens.
Bread and butter, with sugar on the last slice eaten.

Milk stew.
Egg on toast.
Rice pudding.

Milk toast.
Stewed celery or cabbage.
Boiled rice with sirup.

Potato soup.
Bread and butter.
Baked apples.

SWEET-POTATO DISEASES AND HOW TO CONTROL THEM

"Sweet Potato Diseases," a 26-page Farmers' Bulletin—No. 1059—just issued by the Bureau of Plant Industry of the United States Department of Agriculture, and now available for distribution, explains in nontechnical language the character of various field diseases and storage rots which do much to menace the profitableness of sweet-potato crops of this country. Accompanying each description of a disease are suggestions as to how the disease may be controlled or prevented. The comments on the manner in which the various diseases are spread and the best methods of prevention are also of timely value. Supplementing the text are a number of illustrations which should be of assistance to the grower in identifying various field diseases and storage troubles. Stem rot, black rot, foot rot, Texas root rot, scurf, leaf blight, and white rust are among the field diseases treated, while the list of storage rots discussed includes soft rot, ring rot, Java black rot, and charcoal rot.

The new bulletin is a revision of Farmers' Bulletin No. 714. It can be had by addressing the United States Department of Agriculture, Washington, D. C.

Government Making Motion Pictures That Interest Rural and City People

That the work of Uncle Sam's Department of Agriculture deals with subjects of vital and absorbing interest to the city dweller and to the urban lover of the out of doors as well as to the farmer and the stock raiser, and that this department of the Government is one of the biggest producers of educational pictures in the country, have both been made evident by the long and varied list of its film releases just issued. This list announces the productions of the current year, and shows a nine-month season of production of 500 feet of new film per week. Among the releases are several one, two, and three reel films showing the scenic and recreational attractions and the wild game on the Nation's playgrounds, the national forests, which are under the control of the Department of Agriculture; the habits and depredations of the prairie dogs in the Southwest, and the work of the Biological Survey in eradicating this fascinating but destructive little robber; the great story of wheat in the bonanza farming regions of the Pacific Northwest; and the work which the city men and boys, women and girls did toward increasing the food supply during the war by working their backyard gardens and volunteering for work on the farm. The method of applying in the future the skill acquired in these pursuits during the war is also shown. All told, 35,000 feet of new negative has been completed, bringing the total number of available subjects to 56.

List of Subjects

The list of new subjects is as follows: Control of Hog Cholera; Charge of the Tick Brigade; Selecting a Laying Hen; Milk and Honey; Why Eat Cottage Cheese; To Feed a Hungry World; Training Boys for Farm Service; Granite Paving and Curbing; The Potato Industry in the California Delta Region; The Leak Disease of Potatoes; Western Cantaloupe Industry; Wheat Grading under Federal Supervision; Camera Hunting on the California National Forests; Vacation Days on the National Forests; The Wichita National Forest and Game Preserve; Safeguarding the Citrus Fruit; Poultry Pests and Their Control; The Barbarous Barberry; Feeding America from Its Own Backyard; The Last Days of the Prairie Dog; The Red Cross Pig Club; Agricultural and Forest Resources of the United States; Control of Pink Bollworm of Cotton.

The films of the United States Department of Agriculture are intended primarily for use by the agricultural extension forces of the Federal and State Governments, and are used by extension specialists of the department, State extension directors, county agents, State and county club leaders, and home demonstrators, as well as by forest officers of the Forest Service and other representatives of the department who carry on educational work.

Educational institutions are extended the privilege of leasing, at the cost of manufacture, prints of these films for noncommercial use.

Overwhelming Demand for Films

In discussing plans for the distribution of these films, Don Carlos Ellis, in charge of motion-picture activities of the Department of Agriculture, says, "The demand for our films from cities as well as rural districts is overwhelming and is completely beyond the distributing capacity of the department to meet. The public is constantly demanding more and more of truly educational subjects. The day is near at hand when such subjects will no longer be considered as fillers and as subsidiary to dramatic features. It is significant of the changing attitude of the public that the soldiers returning from abroad and detained in camp prior to discharge are demanding a larger proportion of educational shows put on for their benefit. That such is the case has been stated by men in charge of the film exhibitions at several of the Army camps near our National Capital. The films of the Department of Agriculture are proving particularly popular at the camps among boys from the cities even more than among those from the farms. The work of the Department of Agriculture covers a much wider range of activities than its name first suggests. It includes investigations regarding the food we eat, the insects which eat us and our clothes, as well as those attacking plants and animals; the rodents which gnaw through the floors of our city dwellings as well as those which destroy the farmers' crops; and the wild animal and bird life of the country; and it controls our national forests where the bulk of the scenery, big game, and opportunities for recreation on a large scale are to be found. These and many other fascinating subjects are being collected in the film library which the department is building up."

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

Farm Women Tour Neighborhood to Gather Improvement Ideas

Going on a conducted tour to see what improvements your neighbors have made, with a view to adopting some of them yourself, is getting to be popular in many communities. Fourteen cars filled with farm folk in Twin Falls County, Idaho, made such a tour recently. The home-demonstration agent organized the trip. At the first home the particular points observed were a kitchen planned to eliminate useless steps and the many labor-saving devices its mistress had.

In the next home the amusement room received much attention from the visitors. Part of the basement had been made into a room with a hardwood floor for dancing and contained a rustic fireplace. In this room was a billiard table and other paraphernalia for amusement.

After a picnic dinner, a home was visited where the color scheme and arrangement of the furniture was particularly good. Excellent specimens of built-in furniture were also to be seen here. In another home artistic effects with small expenditure of money and attractive homemade furniture were the points toward which the attention of the visitors were directed by the home-demonstration agent. Many things which could be adapted to their own conditions were noted.

In St. Francois County, Missouri, eight machines a short time ago made a farm home tour, under the direction of the home-demonstration agent of the county. All kinds of home improvements were noted on the trip. Electric and gasoline engine water systems, lighting plants, draftless self-cleaning fireplaces, clothes chutes, conveniently outfitted home laundries, different kinds of heating systems, and garbage disposal systems were all studied by the farm people who went on this trip.

CAREFUL TREATMENT SAVES CLOTHES FOR NEXT SUMMER

The organdies, palm beach, the straw hats, and the low shoes are fast disappearing from the day-to-day wardrobe. The wise housewife does not let them stay in the overcrowded closet to take up valuable space and brush against the velvets, serges, and broadcloths. Neither does she lay them away in any condition they happen to be in after their last appearance. Instead, she puts them away carefully cleaned and treated so the least change possible will come to them, keeping record of what supplies there are and where she puts them in order that she may find them when the occasion arises by simply looking at her desk records. If packed in boxes, a label on each box telling the contents makes the finding of each article an easy matter. Her outline of treatment would be very nearly like the following, according to home economics specialists in the United States Department of Agriculture:

Washable white clothing.—Washed carefully, no starch added, blued more than usual to avoid a yellow appearance when spring unpacking comes. Hung in a closet reserved for this particular use or folded so that the creases will correspond as far as possible with the folds into which the garment falls in use and laid in a trunk or box.

Washable colored clothes.—Washed, unstarched, turned wrong side out and hung in the closet or packed away as were the white garments.

Palm beach suits.—Cleaned and put in separate box, carefully folded.

Hats.—How to treat the summer hat depends much upon the material. If of straw, brushing off all dust and packing in a hat box is good treatment. The georgette and lace hats, if soiled, should be dry cleaned and allowed to air thoroughly before wrapping in tissue paper and storing away in a hat box. Avoid weight which will crush the trimming.

Shoes.—The pumps and oxfords should be cleaned and put away with shoe trees in each one.

Inventory should be simple, of course, but definite, giving a list and storage place of the clothes for each member of the family. This will prove of definite service when next spring's clothing budget requires thought and time.

For successful canning in the home of meat and vegetables like corn, beans, peas, asparagus, and okra a steam pressure canner is almost a necessity.

Hens Make Money for Women; Many Eggs Shipped by Circles

Butter and eggs furnish many farm women with most of the money they spend on themselves and their children. The amount of butter a woman sells depends pretty much on the number of cows her husband is willing or able to keep. The number of chickens, however, is usually determined by her skill and by the amount of time she can devote to caring for them.

The women who belong to clubs organized by the Department of Agriculture and the State colleges are taught the best and most up-to-date methods of caring for poultry. The members are also helped in organizing egg and poultry circles which enable them to obtain better prices for their products. One egg circle in Hernando County, Florida, in three months sold $1,840.76 worth of poultry and eggs. In one month the members shipped 1,080 dozen of eggs. Egg circles guarantee their products to be fresh and there is always a good market for guaranteed eggs.

One of the home demonstration club members in Prince Edward County, Va., cleared $500 last year on eggs and chickens, and she buys all her feed. She claims 200 hens, if managed rightly, will enable a woman to keep up her table and to dress well. Next year her egg money will be used to send her boy to college.

A poultry club in Coffee County, Tenn., in 12 months has sold $345 worth of poultry from a flock of 135. The members of these clubs are taught how to weed out poor layers and how to select good setting eggs by the poultry specialists. Often the difference between success and failure for the poultry man or woman lies in knowledge on these two points.

HOW TO MAKE DESSERTS WHEN SUGAR IS SCARCE

If you are wise you will not use your last bit of sugar, trusting to get more when the present supply is gone, but will avoid the possibility of totally sugarless days by making your small supply go as far as possible. This is the advice of

home-economics specialists in the United States Department of Agriculture.

Turn to your war-conservation cookbooks and refresh your memory on ways to use the sugar substitutes. You will find many recipes for cakes, but most of them were built to save wheat as well as sugar. We have this cause for rejoicing at least: Though we must cut down our use of sugar, we still have wheat for cake making and our old stand-bys in time of sugar stringency—molasses, corn sirup, and honey—are still procurable.

The cakes made with sirup are not just like those made with sugar. In most cases they are less sweet. They do fill an emergency need for cake, however. The following recipes use but little sugar.

CHOCOLATE CAKE

- ¾ cup fat.
- 3 tablespoons sugar (brown or white).
- 2 eggs.
- 1 cup corn sirup.
- 2 squares melted chocolate.
- ½ cup milk.
- 1 teaspoon vanilla.
- 1½ cups wheat flour.
- 3 teaspoons baking powder.
- ¼ teaspoon salt.

Cream the fat and sugar, add the egg yolks, sirup, and melted chocolate, and beat well. Sift the dry ingredients together and add alternately with the milk. Add vanilla and fold in the stiffly beaten whites. Bake in loaf or layers in a moderate oven.

For frosting—cook one-half cup corn sirup until it forms a long thread when dropped from a spoon. Pour over the stiffly beaten whites of two eggs and beat until thick enough to spread.

SPICE CAKES ARE GOOD

These little individual spice cakes, baked in muffin tins, are also very good:

- 3 tablespoons fat.
- 4 tablespoons sugar.
- ⅔ cup corn sirup
- 1 egg.
- ⅓ cup milk.
- 2 cups flour.
- 3 teaspoons baking powder.
- ¼ teaspoon salt.
- 1 teaspoon cinnamon.
- ¼ teaspoon spice.
- ¼ teaspoon nutmeg.
- ⅛ teaspoon cloves.
- ½ cup chopped raisins.

Mix in order given.

NO SUGAR NEEDED

These oatmeal drop cookies are very good and they use no sugar:

- ⅓ cup fat.
- ⅓ cup molasses.
- ⅓ cup corn sirup.
- 1 egg.
- 1⅔ cups rolled oats.
- ⅓ cup raisins.
- ⅓ cup chopped nuts.
- 1½ cups flour.
- ½ teaspoon salt.
- ½ teaspoon soda.
- ⅔ teaspoon cinnamon.
- ⅓ teaspoon cloves.
- ⅓ teaspoon allspice.

Mix and drop from a spoon on greased baking sheet. Bake in a quick oven.

Along this same line remember that the old-fashioned gingerbread calls for no sugar. Why not serve it more often as an autumn dessert? It is delicious served warm with whipped cream.

CLOTHING THRIFT TAUGHT IN GIRLS' GARMENT CLUBS

To people interested in a widespread practice of thrift in clothing, the work of the garment-making clubs organized as a part of the cooperative extension work of the United States Department of Agriculture and the State agricultural colleges will appeal with peculiar force. In 1918, 2,356 of these garment-making clubs with a membership of 38,239 and an output of 198,822 garments and other articles, were in active operation in the 33 Northern and Western States. Regular meetings are held under the direction of local, county, and State club leaders, and the members engage in a definite and constructive program of work planned to cover a period of from three to four years.

These programs of work afford club members an opportunity to learn how to make their own clothes and keep them in repair, how to acquire a knowledge of correct standards of dress and personal appearance, how to judge the value of well-made articles, how to exercise economy and judgment in buying clothing, and how to make garment making play its part in adding to the happiness and comfort of the home.

Work is Varied

The sewing club work is usually confined at first to the making of simple articles. Later commercial patterns are introduced and hand sewing is combined with machine sewing—thus eliminating many tedious hours of close work, often done at the risk of eye strain. The program also includes the making of garments suitable for other club activities, for example, canning club aprons and regular boys' and girls' garden club uniforms. The making of simple underwear is emphasized, and in this connection easy, decorative stitches are taught to take the place of cheap or elaborate trimming. Special attention is given to the making over, care, and repair of clothing. In connection with the work in remodeling and renovating, demonstrations are also given by the club leaders in the laundering of common fabrics. When there is sufficient time, the work includes the making of simple, artistic pillows, table runners, and book covers, along with work of a plainer nature, such as the making of sheets and pillow cases, the hemming of table linen and the making of draperies.

Many mothers have been relieved of much of the household sewing and mending since their daughters have joined a garment-making club. One Nebraska girl writes in her club story, "Besides making things for my dolls as I used to before joining this club, I can now help mother make my own clothes." Club girls in several States have earned money by darning stockings for others in their communities, as well as by making garments.

Work for Boys, Too

Surprising as it may seem, boys are also urged to take an interest in this work. The leaders in club work think it is just as important for boys to know how to care for their clothes as it is for girls. The soldiers who have come back from the front testify to the desirability of knowing how to mend, darn, and sew on buttons. Many also sewed on their chevrons, military cords, and some even have told of making their own sleeping bags. It is often necessary for club boys to know how to make and repair their grain and potato sacks, and other accessories to their club work; but most of all it is important that boys learn how to keep their clothes in good order. This necessitates a knowledge of how to press them well, remove spots and stains, brush, and perhaps repair them. Every boy, whether he lives in a farm home or a city home, should look well, for to-day to be well dressed is counted as a business asset.

Record books are sent out by the State agricultural colleges in which the members in their garment-making work keep accounts of their time and costs. In this way, the members learn the first principles of good business management.

MANY VARIETIES IN GARDEN

A garden 122 by 43 feet, if given intensive cultivation, will produce more vegetables, excepting potatoes, than a family of five can use, according to the experience of a garden club member in Madison Parish, La. During the past season the woman owner grew 32 different vegetables in her garden of a little over a tenth-acre. Of some vegetables she had several different varieties to determine which grew best and gave the best satisfaction in that climate and soil. One of her cabbages measure a yard from tip to tip and weighed 16 pounds.

All kinds of dried legumes require soaking over night, and long slow cooking. If beans are old and hard add a little soda to the water in which the beans are soaked and in the first boiling water.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Meat Consumption Compared.

That the farmers are the chief pork and poultry consumers, when a comparison is made on a per capita basis, while the city dwellers eat a greater proportion of beef, veal, and mutton, is shown by the estimates of the per capita consumption of each kind of meat and poultry by the urban and rural population, which have just been completed by the Bureau of Crop Estimates, United States Department of Agriculture. This is the first adequate information concerning the meat consumption of various sections of the country, and of the city and country population, that has ever been obtained. The figures in the estimates represent pounds of dressed weight as would be sold by the butcher.

The total meat consumption per capita is 9 per cent greater in the country than in the city, and excess in varying degrees is found in every one of the customary geographical divisions. Beef consumption is nearly two-thirds greater in the city than in the country. In both veal and mutton consumption per capita the city exceeds the country, veal by 119 per cent and mutton by 43 per cent, and there is a varying preponderance of the city consumption in all sections, except that mutton consumption per capita is greater in the country in the West—that is, between the Great Plains and the Pacific Ocean. If beef, veal, and mutton are combined, the city exceeds the country in per capita consumption by two-thirds.

What the country loses in comparison with the city in the per capita consumption of beef, veal, and mutton is more than offset by what it gains in the consumption of pork and poultry. These are the meats, if poultry may be called meat, that are more especially adapted to the country than the others. The per capita consumption of pork and poultry in the country is everywhere above that in the city, and for the United States as a whole the country is higher by nearly two-thirds for pork and more than one-half for poultry.

The city consumes more beef, veal, and mutton per capita than it does pork and poultry by 9 per cent, but the country consumes more pork and poultry per capita than the other meats by 150 per cent; and in the city pork and poultry are 48 per cent of the total meat consumption (including poultry), and in the country 71 per cent.

Beef, veal, and poultry consumption per capita are higher in the North than in the South, but in pork consumption the South is higher. The West is above the other sections in beef and mutton consumption, and is barely below the leading section, the North Atlantic, in veal consumption, but it is lowest in poultry consumption and, except in comparison with the North Atlantic States, is lowest in pork consumption.

School Without Truant Officer.

Out in Portland, Oreg., a new kind of school has been started which has no truant officer, gives no degrees, and is attended by young and old—college graduates as well as some who didn't go through high school. It's not a large school—only 36 at last reports, who meet once a week for an intensive course in grain grading, because they are interested in grading grain under Federal standards, administered by the United States Department of Agriculture. The school is held once a week outside of business hours in the office of the Federal grain supervisor. Among the students are grain dealers, dock superintendents and foremen, and State grain men.

It has been necessary to divide the school into two classes to take care of the new men who come in. The "senior" class now thoroughly understands how to analyze and grade samples under Federal standards and can answer properly questions relating to inspection and sampling. The school will be continued as long as anyone wishes to attend.

French Want American Lumber.

The purchase of American lumber by France is advocated by certain French interests, in order to supply an estimated need of 14,715,000 board feet annually for several years, according to information secured by the Bureau of Markets of the United States Department of Agriculture. The species recommended are Douglas fir and southern pine. At present the tariff and freight rates in France on American lumber are much higher than on lumber coming from European countries, and American measurements are different from those employed in Europe. These difficulties are not considered insurmountable, however, and an effort will probably be made to overcome them.

Pupils Study Better Stock Data.

A request has been received by the Bureau of Animal Industry of the United States Department of Agriculture for 100 booklets relating to the "Better-Sires—Better-Stock" campaign for class room work and school distribution. The material is to be used by the pupils in connection with their regular work in agricultural studies. The inquiry indicates the importance that is being attached to this crusade from an educational standpoint.

New Orleans as an Export Point.

During three months period ending September 30, a total of 1,336 hogs and 31 cattle were shipped from New Orleans to Havana, Cuba. The hogs were destined for slaughter, while the cattle consisted of well-bred dairy animals, mostly Holsteins. Prospects indicate, reports the United States Department of Agriculture, that future trade through the port of New Orleans will include shipments to Mediterranean and South American points. In this connection it is worthy of mention that the live-stock exports from New York during the same period consisted of 1,252 cattle to Antwerp, Belgium; 60 horses to London, England; 61 horses to Havre, France; 40 cows and 157 horses to Bermuda; 6 horses and 2 mules to Trinidad; 40 mules to British West Indies.

Better Stock for Ontario.

The Better Stock—Better Sires campaign which was formally inaugurated by various States and the United States Department of Agriculture October 1, has attracted attention in Canada. The Province of Ontario has written to the department asking for full information regarding the methods employed in promoting this systematic effort for better bred stock. Serious thought is being given by provincial interests to instituting a campaign similar to the one now in progress in this country.

Some Big Road Projects.

Among the special features of the recent Federal Aid road record as kept by

the United States Department of Agriculture are three road projects to cost over $1,000,000, one of them over $2,000,000. Pennsylvania had first place in the number of statements approved during July, the amount of Federal aid allowances, and the estimated cost of roads to be constructed, while Nebraska turned in the greatest mileage. Seventeen projects in Pennsylvania approved will cost $4,607,028.41 for which the Federal aid is $1,968,997.40. Ohio with 12 projects came next to Pennsylvania in the number approved and in the estimated cost of the roads to be improved, and third in the amount of Federal aid.

Oklahoma's two projects occupy third place for the month in the estimated cost of the roads and second in the amount of Federal aid allowance. This State leads the country in the size of a single project handled in July. It is estimated to cost $1,271,555.60 for which $600,000 Federal aid is allowed.

In the record of approvals for the month of August Arkansas occupies first place in the estimated cost and mileage of projects and in respect to the largest project. Minnesota is first in the total number of projects approved, namely 11, and second in the amount of Federal aid allowances. Pennsylvania received the largest amount of Federal aid and her six approved projects come second in the estimated cost of the roads.

On a Massachusetts project, a short concrete road, the estimated cost is at the rate of $127,864 a mile. This is the highest average cost per mile so far shown in any Federal aid road. A bituminous brick or concrete road in Ohio will average $67,716 a mile and 7.14 miles of concrete or brick in Pennsylvania will average $64,015, while another project in Pennsylvania will average $56,443 per mile.

Clear Cut-Over Land.

The fair-weather days of the autumn afford the farmer an opportunity to undertake the clearing of land for which he has no time in the busy summer months, and which can not be done while the land is wet in the spring. On thousands of farms there are cut-over tracts which should be converted into revenue producers as soon as possible. If the owner decides that the land in question is better suited to crop production than to forest growth, a careful study of the most economical method of removing stumps and small growths should be made. Most cut-over land passes through three stages before reaching its greatest agricultural value. The waste and small growth is disposed of first, then it is allowed to remain in stumps for a few seasons, until the smaller stumps are dead and decayed, during which time it is used for pasture or may be cultivated. Finally, all the stumps are removed.

Generally it is best to cut brush as close as possible to the ground and avoid leaving sharp points that might injure stock. However, if the wood is of no value and the ground is not to be cultivated before the stumps are removed, it may be best to cut the trees rather high above the ground. If the stumps are left 3 feet high there will be less sprouting than if cut low down, and such stumps are more easily pulled.

The most successful method of keeping down sprout growth is by heavy pasturing by goats, sheep, or cattle, in the order named. Any sprouts not killed by pasturing should be cut or knocked off with the head of an ax.

There are a great variety of methods used in removing stumps, by means of burning, pullers, and dynamite. Farmers' Bulletin 974. "Clearing Land," prepared by the United States Department of Agriculture, contains information designed especially for persons interested in this subject. A copy can be had on request.

Much Dried Fruit to Australia.

The United States has built up an increasingly large trade in dried fruits with Australasia, especially with New Zealand, where the exports from the United States have increased from 3,325,214 pounds in 1914, to 9,205,028 pounds in 1918, or 177 per cent. A table in a recent report on foreign markets made by the Bureau of Markets of the United States Department of Agriculture shows that raisins are the largest item in this total, prunes second, and apricots third.

Much Argentine Wool Bought Here.

The United States is Argentina's best customer for wool, according to the Bureau of Markets, United States Department of Agriculture. For the wool season of 1915–16 Argentina exported 152,598 bales to this country, or 51 per cent of Argentina's entire exports of wool. For 1916–17 the United States took 225,467 bales, or 64 per cent. For the 1917–18 season 209,528 bales, or 73 per cent, were shipped to this country.

Many Sheep Marketed at Omaha.

During September all former records of sheep receipts for a single month at the Omaha market were broken, a total of 849,811 animals arriving. It is interesting to note from reports received by the United States Department of Agriculture that 29 per cent of the receipts were sold to slaughterers, while 71 per cent went back to the country as feeders, Nebraska and Iowa purchasing a large percentage of the feeder animals. The abundance of rough feed in the territory tributary to Omaha is largely responsible for the heavy sales of stock sheep.

Funny Man at the Fair.

"Flash this on your stereoptical screen," said a visitor at the United States Department of Agriculture exhibit at the National Dairy Show, and he handed the operator this limerick:

A man who always drank Fer-mil-lac
Took up his home in Fond du Lac
Said he to his wife
I'm here for life
For I am Fond du Fer-mil-lac.

The author of this limerick wasn't a "funny man" but, oddly enough, an accountant!

At one booth in the United States Department of Agriculture exhibit they were dispensing several varieties of fermented milk, including fermilac, buttermilk, and koumiss. The stereoptican helped spread the news with other flashes, such as:

"'Come on! Have another drink!' Won't worry you if you are on the milk wagon."

"There are 57 varieties of fermented milk. Try them at the booth. Kickless but full of punch!"

REAL SUGAR SUBSTITUTE HAS SANCTION OF GOVERNMENT

(*Continued from page 1.*)

the present emergency, the specialists expect that it will make such a batting average that it will hereafter have a regular place in the batting order. This is a case where the substitute makes so good that the regular, whose place it takes, may have to warm the bench. While it is not likely that this new sweet will replace sugar for table use in normal times, it undoubtedly will make a place for itself in the household as it is doing in the manufacture of food products. It is an excellent, wholesome sirup and, on account of its delicious flavor, is superior to sugar for some purposes in cooking and baking.

A coat of paint does not "make" farm buildings any more than "clothes make the man," nevertheless, the neat appearance of the farmhouse and barns is almost invariably an index of the efficiency of the owner. Appearances do count.

The State Agricultural College of Kansas, one of the institutions cooperating with the United States Department of Agriculture in various forms of extension work, now boasts of a $12,000 model hog house.

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SEES NO DETERIORATION IN AGRICULTURE OF AMERICA

Secretary Houston Points Out Gradual Rise of Acre Yield

Discusses Other Fallacious Notions, As well As Land and Marketing Problems—Time to Consolidate Gains Already Made

In addressing the National Association of Commissioners of Agriculture in Chicago, November 11, the Secretary of Agriculture, David F. Houston, said:

"I seem to myself to be certain of only one thing at the present moment, and that is that I am glad to meet the members of this association once more. It is always a pleasure for me to meet those who are deeply concerned with problems with which I have to deal, and especially those who have to deal with them in definite and responsible ways. Your duties call upon you to survey the field of agriculture in your respective States and mine to survey the whole field of national agriculture. The problems are so numerous that one finds great difficulty in determining what to talk about on an occasion like this, and I have had very little time to give to the preparation of addresses. I have decided to say something concerning improvement in production and the need of further attention to marketing.

"It is still true that the field of distribution presents to the farmers more difficulties than any others. The problems are of long standing, but only recently has the thought of those responsible for leadership been definitely directed to them and have agencies been created systematically to consider and to assist in solving them. Six years ago the present Bureau of Markets began its work as a small office with a very limited appropriation. Since then a few States have erected similar machinery.

Advance of Agriculture

"The field of production has for a longer time been more systematically exploited, and although much remains to be done the results for the Nation have been significant and of large proportions. In view of the facts it is singular that the notion should still be disseminated that American agriculture has been deteriorating, and that there is ground for pessimism about the future. It is true that the production of some of the staple commodities has not kept pace with population, but this in itself may be of little significance. The advance in agriculture has revealed itself not so much in the expansion of the staple commodities as in a greater diversity of products, in the appearance of new crops, in the rise of minor crops to large proportions, and the availability of supplies throughout the year. But even in reference to the staple products as measured by one important test there has been a very marked upward movement. The yield per acre of crop production in the United States has gradually increased. The average rate of this increase for the past 25 years has been small, it is true, being only one-half of 1 per cent a year, but the aggregate results have been enormous. This upward trend is not readily observed in yields from one year to another, owing to the wide yearly variations caused by the differences in seasons. But when averages are obtained for a series of years it is readily observed. During the seventies and eighties, when there was a vast expansion in farm area in the West, and crops were grown on a more extensive scale, the tendency of yields was downward. Since the early nineties, however, it has been upward. For the 10 years ending with

(*Continued on page 2.*)

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TO COOPERATORS.

RECENT revision of the mailing lists of the Weekly News Letter possibly has resulted in cutting off the names of some of the Department's voluntary crop correspondents or others who have been rendering valuable service. Lack of funds makes it necessary to cut down the edition of the News Letter, but the department does not desire to discontinue it to its official cooperators, and will be glad to restore the names of any who will present the facts which they think entitle them to receive the publication.

The Weekly News Letter may be secured by anyone from the Superintendent of Documents, Washington, D. C., for 50 cents a year.

WILL ISSUE QUOTATIONS ON COTTON AND COTTON SEED

Department Will Give Reports from Five Southern Markets

Localized News Service Will Furnish Information on Prices of Spot Cotton and Cotton Seed at Near-by Markets

To give to producers and others information regarding actual cotton prices in their local or near-by important markets, the Bureau of Markets of the United States Department of Agriculture is inaugurating a cotton-price quotation service and will issue reports from five important points in the cotton belt. Cottonseed prices also will be covered.

The first report is to be issued from Memphis, Tenn., for the district immediately surrounding that point; other reports will follow from district headquarters at Atlanta, Ga.; New Orleans, La.; Charlotte, N. C.; and Dallas, Tex., for the territory immediately surrounding each of those points.

In announcing the price-quotation service for cotton, the Bureau of Markets states that producers, and even dealers interested in cotton, have always lacked sufficient reliable information as to the actual market values of the different grades of cotton in the various primary markets and concentration points in the cotton belt. A recent amendment to the United States Cotton Futures Act provided authority and funds to enable the Secretary of Agriculture to inaugurate a quotation service which would furnish producers and others the needed information, particularly in view of the fact that, as a result of the amendment, an important outlet for ten of the lower grades of cotton which had previously been deliverable on future contracts had been closed. The closing of this outlet for these ten low grades of cotton has emphasized the need for a quotation service of the kind which the Government is now establishing.

Gathering of Reports

Reports of purchases and sales of cotton will be gathered from country buyers,

country merchants, dealers, brokers, commission merchants, factors, mills, and others who buy or sell cotton in the important country markets and concentration points throughout the cotton belt. On the basis of these reports, the Bureau of markets will prepare and publish weekly bulletins showing the prices at which the various grades of cotton have actually been bought and sold. The Bulletin issued from each of the five district headquarters will show cotton prices in a number of markets in the territory immediately surrounding or adjacent to the district headquarters, and its distribution will be largely confined to persons in the district for which it is issued. No one bulletin will cover quotations for the entire cotton belt, and it is intended that the bulletins shall be prepared in a concise, readily understandable form and given such distribution that they will be of local value to persons in the communities which receive them.

Plan of Distribution

The information contained in the bulletins will be telephoned or wired at their expense to persons who request such service. The complete bulletins will be mailed to newspapers, postmasters, Federal, State, and county officers in each district, to dealers and others who furnish the information on which the bulletins are based, and to banks, cotton gins, exchanges, oil mills, producers, and others who desire to have them. It is expected that the information contained in the bulletins will be given widespread circulation and will be available to all who may be interested.

In view of the general lack of information as to the prices of cotton seed, the quotation service for cotton will also include the actual prices at which cotton seed is bought and sold at a number of markets selected for the purpose in each district.

SEES NO DETERIORATION IN AGRICULTURE OF AMERICA

(Continued from page 1.)

1890 the average yield per acre of wheat in the United States was 11.8 bushels; for the 10 years ending in 1918 the average yield was 14.8 bushels, or an increase of 25 per cent. In the first period the average yield of corn was 23.4 bushels; in the second 25.8, or an increase of 10 per cent; of oats, 25.9 in the first period; in the second, of 32.2, an increase of 24 per cent; of potatoes, 72.9 bushels for the first period; and 96.8 for the second, an increase of nearly 33⅓ per cent. Cotton, notwithstanding the ravages of the boll weevil, increased from an average of 169 pounds in the first period to 175 pounds in the second, an increase of 3½ per cent. All other field crops have likewise improved in yield, the average for the 10 years ending in 1918 being 16 per cent greater than that for the period ending in 1890. This tendency is general throughout the Union. It is not due to the shifting of production. For example, in the older State of New York, the increases for the two periods were as follows: Corn, 24 per cent; wheat, 44 per cent; oats, 21 per cent; barley, 24 per cent; buckwheat, 43 per cent; potatoes, 30 per cent; hay, 10 per cent; weighted average of all, 18 per cent. The facts for New England are even more striking and significant. For the six States the weighted average increase for all field crops in 1909–1918 over 1881–1890 is 26 per cent, and over 1866–1875, 25 per cent.

"The same tendency holds in most civilized countries. If we compare the average wheat yields per acre in the 10-year period 1891–1900 with those in the 10 years 1901–1910, we find the following increases: United Kingdom, 6 per cent, or from 30.1 bushels to 31.9; the Netherlands, 19 per cent, from 27.7 to 33; New Zealand, 28 per cent, from 24.6 to 31.5; Sweden, 14 per cent, from 24.2 to 27.6; Germany, 23 per cent, from 23.6 to 29.1; Ontario, 12 per cent, from 19.4 to 21.8; France, 8 per cent, from 18.1 to 19.5; Hungary, 3 per cent, from 17.3 to 17.8; Manitoba, 7 per cent, from 17 to 18.2; Japan, over 2 per cent, from 17 to 17.4; Roumania, 21 per cent, from 14 to 16.9; the United States, 8 per cent, from 12.9 to 13.9; India, 16 per cent, from 9.7 to 11.3; the Caucasus, 18 per cent, from 9.5 to 11.2; and Russia, 14 per cent, from 8.3 to 9.5. The yield per acre is the lowest in countries which have been expanding most rapidly and where extensive systems of agriculture with cheap land and dear labor prevail.

Some Agricultural Fallacies

"These figures should disprove the allacy that in point of productivity American agriculture is on the decline and that we are in sight of the limit of production. It might be interesting to discuss other equally fallacious notions, such as that we need an unlimited number of farmers, that agriculture is not a business which requires the expenditure of capital and labor and must show a profit, that the remedy for an assumed shortage of production is a back-to-the land movement, that the American farmer has been ignored by the Government, or that it can solve all the problems of production and distribution. The Nation does not need and can not have an unlimited number of farmers unless it is to return to the old basis when the farm was self-sufficient and produced little or no surplus. It should have, and in the long run will have, just as many farmers as will produce what the world will take at a profitable price. Farming must pay and rural life must be made attractive and healthful, schools with their instruction properly related to rural life must exist, good roads be provided, and adequate medical, hospital, and sanitary arrangements be developed. When these conditions are met, the problem will have been solved and the Nation need not worry about the number of its farmers or the requisite supply of materials for food and clothing.

American Farmer Not Ignored

"Of course, the American farmer has not been ignored either in legislation or in machinery for furnishing him practical assistance. I need only refer to the Federal enactments of recent years, such as the changes in the national banking law making possible loans on real estate, the farm loan system, the Smith-Lever Act, the grain standards and cotton standards laws, the Federal warehouse, and the good roads measures, and not to speak of the State departments of agriculture, the great land-grant colleges of the Nation, and the Federal department. It is a simple fact that this Nation has more beneficent legislation for agriculture than any other country and agencies actively assisting the farmer which in point of personnel, support and range of activities, exceed those of any other three nations in the world combined.

"One of the objectives of all good farmers and of the agricultural agencies assisting them is to promote increased yields along economic lines by the further application of scientific knowledge and the adoption of improved processes. The path of progress is pretty well charted and the forces are moving along it with gratifying speed.

"There has been no such full consideration of the policy which should be pursued in reference to the extension of the farm area by the appropriation and cultivation of unused public and private lands. Since the Nation now retains but little land of ready availability, agricultural expansion will result mainly from efforts to utilize and to increase the productivity of farm lands now owned by individuals, corporations, and States.

"This situation raises a number of important questions: How rapidly should new areas be developed? What means should be employed to bring new lands into use so that settlers may achieve success, employ sound methods of husbandry, and establish a wholesome community life?

Extending Farm Area

"In considering the rate of extension of the area in farms, it is important to recognize that the expansion of the Na-

tion's agriculture is limited by the supply of labor and capital available for use in agriculture as distinguished from other uses, rather than by the scarcity of undeveloped lands. It is true that in general the best land is in cultivation, but without question much of the remainder can be tilled when the Nation reaches the economic stage which would justify its utilization.

"There are numerous fallacious opinions with respect to the need of extending the farm area. Many people, noting the prices prevailing for farm products, demand increased production and insist that the remedy lies in an immediate and rapid expansion of the farm area. Others, observing large areas of unused land, deplore the great waste of our resources. Still others explain the movement of population from rural districts to cities by the nonavailability of land, which they attribute to land monopoly, speculation, and other evils. However, the demand for farm products, unlike the demand for manufactured articles, does not expand rapidly to meet a large increase in supply. There is a tendency toward an equilibrium between urban and agricultural industry. If too much labor and capital are diverted from farming, the relative prices, and consequently the relative profits, of agricultural activity will increase, and there will be a tendency toward agricultural expansion. If this expansion is excessive, however, relative prices and profits in agriculture will tend to decrease and the industry may suffer depression. The inelasticity of demand for agricultural products sets a very decided limit at a given time to the increase of population and capital engaged in agriculture.

Danger in Fluctuations

"It is not in the interest of the producers or of the consumers to have large fluctuations in the quantity of farm products. There is always danger of glutting the market and of serious loss. The aim rather should be to secure a steady flow of commodities of sufficient volume to supply an increasing demand at prices which will yield the farmer a decent wage and a fair profit on his investment. There is reason for believing that for some years before the outbreak of the World War, the growth of urban communities had been out of proportion and that a tendency toward agricultural expansion had set in. This tendency was intensified by the war and, consequently, a considerable rapid development resulted. This is revealed in certain data for the years 1909, 1914, and 1918. We have no available statistics of total land in farms for all the dates mentioned, but the acreage in crops will show the general changes. The area devoted to 19 principal crops increased 7.7 per cent from 1909 to 1914, and 10.1 from 1914 to 1918. On the other hand, the estimated population increased only 8.8 per cent from 1909 to 1914, and 6.6 per cent from 1914 to 1918. The crop area per capita, therefore, was 3.28 acres in 1909, 3.22 acres in 1914, and 3.33 in 1918, a decrease of 1.8 per cent from 1909 to 1918, but an increase of 3.4 per cent from 1914 to 1918.

Large Increase in Area Probably Unwise

"This expansion has probably resulted in part from the use for crops of land normally devoted to other purposes, especially for pasture. However, it is reflected not only in an increase in the per capita production of nearly all the important crops, but also, according to a recent report, in the number of cattle and swine per capita. Moreover, estimates of the production of milk, eggs, and poultry indicate an increase in the per capita production of these commodities during the war. In view of these facts, it probably would be unwise to stimulate a large increase in the acreage of farm land at the present time, especially as such an increase would have to be effected by utilizing land which is inferior or which would be made available at a heavy outlay of capital for drainage, irrigation, or clearing. Apparently, therefore, American agriculture should consolidate the gains already made, prepare for the period of competition which is to be expected with the return of normal world conditions, principally by increasing by sound and economical methods the productivity of lands already under cultivation, and utilize the services of the most experienced and judicious agricultural leaders in determining where, when, and how to bring into cultivation and develop public and private unused land.

Study of Unused Land

"The best experts of the Federal department and of the agricultural colleges should make a careful study of the possibilities of utilizing land not now devoted to agriculture. In respect to the 200,000,000 acres of cut-over land, 60,000,000 acres of land needing drainage, and 30,000,000 acres which might be irrigated, there is great variation from district to district as to the possibility of economic use. Distinctive regions should be fully studied with a view to assemble all existing data on productivity, the cost of making the land available, present tenure and prices, the type of agriculture best adapted to the conditions, the possible returns, the minimum size of farms capable of supporting families in reasonable comfort, the minimum equipment needed in the beginning of settlement, sources of credit, and marketing and transportation facilities.

"At present various private agencies are engaged in promoting land settlement. Many of them are honest in intention, promise, and practice; others keep within the letter of the law, but through exaggeration and indirection of statement create false impressions in the mind of the settler. Many violate no canon of fair business practice, but their interest is in profits and they do not pursue a policy calculated to develop a profitable and wholesome community life. There are a few which have devoted careful studies to the conditions of successful settlement and have developed their business with a view to the settlers' progress and success. Practically all these agencies, however, are seeking to realize as high a price for their undeveloped holdings as possible, and the settler is compelled to face the problem of adjustment to pioneer conditions while carrying a burden of land value which often represents in part the capitalization of a future increase in earning power.

"The intending settler of small means is rarely able to distinguish between the good and bad methods of selling land in new regions. The more unscrupulous the land company the more lurid are its advertisements and the more extravagant its promises. Settlers often are induced to invest their all in land not suitable for successful farming, to purchase more land in relation to the capital available for development than they should, or to undertake projects the cost of clearing or reclamation of which will prove to be prohibitive. The results in many instances have been tragic failures after years of incredible hardships, waste of capital and of human lives, discouragement of intending settlers, and injury to the business of legitimate and well-meaning land agencies.

Aid For Farm Seekers

"It would be desirable if governmental agencies, by systematic aid, should furnish reliable information to those seeking farms, should take particular pains, through their agricultural machinery, to give new settlers very special assistance and guidance and, where conditions are favorable, should aid in the development of well-considered settlement plans.

Farmers Assume Main Tasks

"It is, of course, true that in the field of production, as well as in the field of distribution, the farmers of the Nation must assume the main tasks of improvement. The most that the Government can do is to create favorable conditions under which production and distribution may take place, to see that the channels

(*Continued on page 5.*)

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

Facsimile of stamp used by Bureau of Animal Industry in marking the meat of horses slaughtered in Federally inspected establishments.

DEAD ANIMALS FED TO HOGS MAY SPREAD TUBERCULOSIS

Warning against the feeding of diseased cattle carcasses to hogs is sounded by the United States Department of Agriculture. A conference of State and Federal officials, held early in October, to deal with matters of tuberculosis eradication, brought to light numerous instances where hogs contracted tuberculosis after feeding on carcasses of tuberculous cattle. In one case nearly an entire drove of hogs showed lesions of tuberculosis, which at first the owner could not account for. Later he admitted to the veterinarian investigating the case that several months before he had fed to the hogs the carcass of a cow that "never did very well."

The Bureau of Animal Industry urges live-stock owners to have a careful autopsy made on animals dying on the farm or killed because of sickness, in order that the definite cause of trouble may be learned. Carcasses that show lesions of infectious diseases should not be fed. Instead, such carcasses should be cared for so that no part can be eaten by hogs. Thorough destruction of the carcass by burning, or by deep burial under a liberal application of quicklime, is the proper procedure in such cases. Attention is called also to the danger of feeding offal from slaughtered animals to swine, as such a practice is another source of infection.

CERTIFICATE'S FORM CHANGED IN GRADING APPEAL CASES

Offices of Federal grain supervision began on November 1 to issue "Federal appeal grade certificates" in lieu of the old form of "grade memorandum" in cases where appeals are taken from the determination of licensed grain inspectors. The Federal appeal grade certificates are issued by grain supervisors as soon as the appeal is filed by any interested party who contests the grade assigned the grain by the licensed inspector. This certificate is ordinarily used in settling controversy as to grade between the buyer and seller. Copies are furnished by the supervisor to all interested parties. Coincident with the change in the form of the appeal grade certificate, the formal findings of the Secretary of Agriculture in appeal cases will be retained with the appeal record and furnished to interested parties only upon request instead of being forwarded to the parties in all cases. The findings of the Secretary of Agriculture reciting the grade determined in the appeal are issued from Washington, and have the value of prima facie evidence as to the true grade of the grain in all United States courts.

The above-mentioned changes in connection with appeal cases are provided for in Amendment No. 12 to the rules and regulations of the Secretary of Agriculture under the United States Grain Standards Act. The same changes are made effective with regard to the handling of dispute cases as in connection with appeal cases, but in other respects the procedure with regard to appeals and disputes filed under this act remain as heretofore.

FOREIGN FOOD IMPROVED BY OPERATION OF U. S. LAW

The Federal Food and Drugs Act has brought about many changes in methods of manufacturing and labeling of foods and drugs, not only in the United States, but in foreign countries as well. This is the opinion of officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of that law.

The most recent instance concerns powdered dried eggs from China. Large quantities of powdered eggs are shipped into the United States from China for use by commercial bakers. These include powdered white of egg, powdered yolk of egg, and powdered whole egg. These preparations are made by drying and powdering the eggs as taken from the shells. Egg powders will keep for a long time, can be shipper economically, and, when properly prepared from fresh eggs, can be used to take the place of shell eggs in baking. Powdered eggs should never be confused with the so-called "egg substitutes," which contain little or no egg, and which will not serve the purpose of eggs in baking.

Examination of the egg powders imported from China showed that they contained zinc, varying from a mere trace to quantities sufficient to require the exclusion of some of the shipments from entry into this country. Investigation developed that the zinc in the egg powder was acquired in the process of manufacture, either from zinc-lined trays of zinc belts used in the drying of the eggs.

As a result of the exclusion of some of the shipments to this country, many manufacturers in China have so changed the process of manufacture as to produce dried eggs, yolk and albumen, free from zinc, and the indications are that they will soon be able to supply the demands for these products used in increasing quantities by bakers and manufacturers of bakers' supplies.

MUCH WOOL USED IN SEPTEMBER

Manufacturers used about 60,000,000 pounds of wool, grease equivalent, in September, 1919, which represents the second largest monthly consumption during 1919, the figures for July, 1919, being 63,000,000 pounds, grease equivalent. The September, 1919, total exceeds that for the same month in 1918 by 2,000,000 pounds, and it is pointed out that in September last year the mills were busy with war contracts.

Totals by condition in pounds for September, 1919, as given by the Bureau of Markets, United States Department of Agriculture, were: Grease, 44,531,330; scoured, 6,692,371; and pulled, 1,762,260.

It is much more fun to watch your money grow than to watch it go. Buy War Savings Stamps.

SEES NO DETERIORATION IN AGRICULTURE OF AMERICA

(*Continued from page 3.*)

of distribution are open and that abuses do not exist, and to furnish all possible aid in the way of information and suggestion. The present time is especially fruitful of proposals of a large and novel nature designed quickly to solve marketing problems. Measures have recently been introduced into the Congress proposing a private or a governmental agency of national range, with State and county subdivisions, to supervise, or even to direct, the handling or marketing of the Nation's farm products. The probability is that an undertaking of such character would break down of its own weight. There is no question that everything which can legitimately be done to eliminate waste in marketing and to promote orderly distribution should be done. But the views of the most experienced students of the matter seem to be that we must approach the problem in simpler terms, working along lines which have clearly proven to be feasible, and promote existing tendencies and practices.

Certainly we can proceed further, by State, Federal, and individual action, in standardizing the production, the handling, and the packing of farm products, and in promoting the use of standard containers and proper storage on farms, in transit, and at market centers. We can continue to furnish assistance in the preparation and installation of accounting systems, and more extensively and accurately gather and furnish to the farmers of the Nation all pertinent statistical information. I need scarcely emphasize the paramount importance of making available daily to producers facts as to market prices, supplies, and demands. The market news service of the Department of Agriculture has already clearly proven its value. The department now conducts and operates an inspection service on fruits and vegetables at 163 markets. It publishes reports on the supply, commercial movement, and prices of most of the important products and, in cooperation with 14 States, is issuing exchange marketing lists which make known to county agents, breeders, and feeders in these States where surpluses of live stock, feeds, and seeds are to be found. It is estimated that through such service in Iowa alone the farmers made local exchanges with an estimated value last year of a million five hundred thousand dollars.

Help Cooperative Associations

Particularly must the Federal and State agencies omit nothing to promote helpful farmers' cooperative associations. Already within a generation many such bodies have developed and expanded rapidly. It is estimated that such associations in this country now market annually approximately a billion five hundred million dollars' worth of commodities. They are of very diverse forms and size. For the most part, where they have been successful, they have centered their activities on some one product or related products in a given area. The indications are that, with the continued success of these enterprises and with the proper educational effort and direction, they will develop even more rapidly in the future. Through bulletins, news articles, and lectures, the Department of Agriculture has endeavored to stimulate these efforts. It has furnished suggestions for State legislation governing their organization and, in cooperation with 23 States, it has employed trained specialists to advise extension workers, including county agents, with reference to marketing and organization problems.

Expand Existing Activities

"As I have said, the rational program would seem to be to expand these activities, which have clearly demonstrated their value, to follow the scent, as it were, and to further develop the machinery through which increased assistance may be furnished. There should be in every State one or more trained market specialists of the Department of Agriculture, working in cooperation with the proper State authority, to stimulate cooperative enterprises and to aid farmers in their marketing work by helpful suggestions as to plans and methods. These experts could very effectively aid the extension workers. County agents generally have the benefit of assistance of specialists in many other lines, but at present they have not the requisite assistance in lines of distribution. They can not be expected to be expert in all agricultural matters or to be omniscient. The department is requesting increased funds to make this extension possible and will take the necessary action promptly if the appropriations are made.

Field For All Agencies

"Both the colleges of agriculture and the State departments have large duties in this direction and an immense opportunity. The field is broad enough not only for both of them but also for the Federal department and for farmers and farm organizations. The colleges will naturally direct their efforts largely along investigational and educational lines and, I imagine, the State departments will more and more deal with regulatory matters of large import and wide range and will cordially cooperate with other agencies in the general educational effort. The Department of Agriculture stands ready to do its part, so far as its facilities permit, in cooperating with both agencies in the fields prescribed for each by State laws, with an eye single to the largest service not only to the masses living in the rural districts but to the whole people of the country."

FOREIGN LANDS LEAD IN EATING DAIRY PRODUCTS

Although Uncle Sam is the champion dairyman of the world, he is only mediocre as a consumer of butter and cheese. The records of the per capita consumption of dairy products which are available are not directly comparable, because the figures from many of the foreign lands are so old that they are almost moss-covered. However, here they are for what they are worth, as collected by the U. S. Department of Agriculture.

According to the latest figures now available, Denmark leads in cheese eating, the average Dane making away with 12.3 pounds of cheese per year; while Johnny Bull is second, having stomached 11.2 pounds. The average Frenchman is credited with eating 8.1 pounds of cheese, while each Dutchman in the Netherlands consumed about 8 pounds of cheese. The average cheese consumption in Norway was 7.1 pounds; in Switzerland, 5.3 pounds; Italy, 4.8 pounds; Australia, 4.8 pounds; United States, 3.8 pounds; Canada, 3 pounds; New Zealand, 3 pounds; and Argentina, 2.9 pounds.

Australia led the world in butter consumption, with 25.6 pounds per person, in 1913. New Zealand, with 21.7 pounds per inhabitant, in 1914, ranked second. Other per capita butter-consumption records, for years ranging from 1906 to 1914, are: Denmark, 19 pounds; United Kingdom, 19 pounds; United States, 17.5 pounds; Canada, 16.3 pounds; Norway, 14 pounds; Netherlands, 11.3 pounds; Switzerland, 11 pounds; Italy, 2.5 pounds; and Argentina, 1.7 pounds.

The most recent figures show that the average daily consumption of dairy products in the United States per capita runs like this: Condensed milk, 0.49 ounce; skim-milk powder, 0.012 ounce; milk, 16 ounces; cheese, 0.13 ounce; butter, 0.76 ounce; and ice cream, 0.5 ounce.

Johnston County, Okla., is known as the county from which the purest Boon County white corn may be purchased. The fact is entirely due to the cooperation of the club boys for the past seven years. Through their united efforts their county team has taken the State prize on corn for four years.

Imported Foods and Drugs Inspected; Larger Quantities Now Coming to U. S.

Larger quantities and a greater variety of foods are being imported from foreign countries each month, although prewar volumes have not yet been reached. This statement is made by officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the Federal Food and Drugs Act.

The importation of both foods and drugs was affected greatly by the war, but the interruption to the importation of crude drugs was less marked than in the case of pharmaceuticals and foods, according to the officials. An inspection of all imported food and drug products is maintained by the Bureau of Chemistry, in order to insure that such products coming from foreign countries are not misbranded or adulterated under the terms of the Federal Food and Drugs Act.

Analysis Often Necessary

Laboratories for the examination of samples from shipments of imported food and drugs are maintained by the Bureau of Chemistry at its branch stations in Boston, New York, Philadelphia, Savannah, New Orleans, San Francisco, Seattle, San Juan, P. R., and at some other cities where the importations are smaller in volume. Invoices of all food and drug shipments coming into the United States are scrutinized by food and drug officials, and all shipments which there is reason to believe may be misbranded or adulterated are examined. In many instances chemical analysis of samples is necessary to determine whether or not a given shipment is in accordance with the provisions of the law. In other instances a physical examination by a specialist is sufficient.

The Federal Food and Drugs Act provides that if any article of food or drugs offered to be imported into the United States is adulterated or misbranded within the meaning of that act, or is otherwise dangerous to the health of the people of the United States, or is of a kind forbidden entry into, or forbidden to be sold, or restricted for sale in the country in which it is made or from which it is exported, or is otherwise falsely labeled in any respect, such article shall be refused admission. The Secretary of the Treasury is authorized by the act to refuse delivery to the consignee of such articles and to cause the destruction of any goods refused delivery which shall not be exported. However, when importers, through no apparent fault of their own, receive shipments of foods or drugs which are adulterated or misbranded, but not grossly, it is customary to release the goods after relabeling, sorting, or cleaning, if a product which complies with the law can thus be obtained.

Many Foods Now Coming In

Certain crude drugs and some foods, such as coffee, tea, spices, olive oil, figs, etc., are either not produced at all in the United States or are produced in too small quantities to meet the demand. Other foods are imported to meet the demands of that portion of the population born in foreign countries who desire to obtain the same kind of food to which they were accustomed before coming to this country. There are some foods produced or manufactured in other countries which have established a world-wide reputation for excellence or some peculiarity of flavor. Although domestic articles of the same kind may be available in abundance, some prefer to buy the foreign article because of an assumed or actual superiority of appearance, flavor, or quality. The cognacs and champagnes of France are articles of this class which can no longer be imported; but certain foreign ginger ales, mineral waters, jellies, sardines, cheeses, etc., continue to be in demand.

Practically all the different classes of foods imported previous to the war, with the exception of alcoholic beverages, are now coming in, say the officials, although in the case of some foods in not as large quantities. War embargoes on some foods are still in effect in a few countries. For instance, olive oil can not as yet be shipped from Italy. Olive oil, however, is being imported from France and Spain.

The officials of the Treasury Department cooperate with those of the Bureau of Chemistry, United States Department of Agriculture, in enforcing the provisions of the Federal Food and Drugs Act relating to imported foods and drugs.

GRAIN PRESSURE IN STORAGE BINS

To facilitate the designing of grain bins by engineers, tables of pressures, graphical charts, and rules for the more advantageous application of pressure tables, are included in a publication just issued by the Bureau of Markets, United States Department of Agriculture.

The publication is of interest only to engineers, who may obtain copies of the very limited edition upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C., for Bulletin 789, "Notes on Grain Pressures in Storage Bins." A bibliography on the subject of pressure of stored grain is included in the bulletin.

APPLES IN NEW FILM

A film on "Apples and the County Agent" was made one of the prominent features on the program of the Farmers' National Congress, the Farm Women's National Congress, and the Maryland Agricultural Society which have just closed their sessions at Hagerstown, Md. The picture was made by the United States Department of Agriculture in cooperation with the extension service of the Maryland State College of Agriculture and was finished in time for a prerelease showing at the congress.

INTERESTED IN BOYS' CLUB WORK

Boys who own purebred animals are likely to grow into men who are interested in keeping the best types of stock on their farm, live stock associations are realizing. Many associations are offering encouragement and prizes to the boys in the purebred animal clubs, supervised by the State colleges of agriculture and United States Department of Agriculture. The prizes are usually for the best records in the feeding or growing of purebred animals. At the Delaware State Fair, Thomas E. Jeffries, jr., of Stanton, won the State sweepstake on his purebred Chester White sow and litter. In recognition of this achievement the Chester White Swine Record Association presented him with a $10 membership. At the same fair, Franklin V. Maull, of Cedar Grove, won the sweepstake on his Duroc Jersey. The Duroc Jersey Breeders' Association sent him an engraved gold pencil holder. His picture and that of his pig, the feed record, and his club story for the year will be printed in the association's achievement book, which is sent all over the United States.

When there is not sufficient labor available to harvest all the crops, advises the United States Department of Agriculture, live stock offer a profitable method of taking care of the surplus by pasturing. The farm animals not only harvest these crops cheaply, but while doing so make profitable gains and help to maintain soil fertility.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Mexicans Want to Cooperate.

Miguel Santa Maria and Ernesto Reza Rivera, scientific agronomists of the Mexican Department of Agriculture, have recently spent considerable time in Washington in conference with heads of various bureaus and offices in the United States Department of Agriculture. They have also attended the Farmers' Congress at Kansas City, the Cotton Congress at New Orleans, and agricultural and livestock meetings in a number of cities. They expressed deep interest in cooperative work with the United States Department of Agriculture in phases of agriculture that are of interest to both countries and in which complete success for either depends somewhat on what is done by the other.

Messrs. Santa Maria and Rivera had an interesting story to tell of the progress in agriculture that has been achieved in Mexico in spite of the disturbed condition of the country during the past few years. The magnificent buildings of the Mexican Department of Agriculture have been completed, an agricultural museum and eight experiment stations have been established, short courses in agriculture are given in a number of schools and plans are under way for a system of agricultural education for educating an adequate corps of highly trained agricultural specialists. Some notable achievements have been recorded in plant utilization. Guayule, a dwarfish desert plant that was formerly supposed to be of no commercial value, has been found to yield a good quality of rubber, and plantations of it are now under cultivation at the experiment station at Tehuacan, Pueblo. It is believed this rubber will be largely utilized in making automobile tires and for other purposes.

More States for Better Sires.

A total of 36 States and the District of Columbia have enrolled in the "Better sires—Better stock" campaign since it was instituted October 1. The latest States to join the movement are Alabama, Arkansas, California, Florida, Kansas, Montana, Nebraska, North Carolina, North Dakota, Pennsylvania, Texas and Tennessee. The extent of the movement is further indicated by the fact that over 15,000 enrollment blanks have been distributed to officials of agricultural colleges, county agents, and others working in the campaign with the Bureau of Animal Industry, United States Department of Agriculture.

Silage from Beet Tops.

In the intermountain West where there is a shortage this season of hay and other forage, the siloing of beet tops is recommended by the United States Department of Agriculture as an aid in meeting the condition. Many beet growers have found that beet top silage has a value equal to about one-half of the value of alfalfa hay. The silage is well suited for the dairyman or for the feeder of beef or mutton. When fed to cattle or sheep the hay requirements may be reduced 50 per cent, and, furthermore, the warm, succulent silage appears to create appetite in the animals, causing them to take on weight and utilize larger volumes of feed.

Beet pulp and molasses have an established value with stock feeders. At the present price of beet molasses, many feeders are finding a molasses blend with hay or with pulp to be profitable. It also furnishes variety and stimulates appetite when fed in regulated amounts.

An inexpensive pit silo may be made by scooping out a hole of suitable size to hold the beet tops. The bottom and side of the silo should be lined with straw before it is filled with the tops and the tops should be firmly packed and covered with beet pulp or earth to exclude the air.

Cooperate in Killing Coyotes.

The Biological Survey of the United States Department of Agriculture, in cooperation with the North Dakota Agricultural College, has made arrangements to begin work in destroying coyotes and other predatory animals in North Dakota. That the funds available may be expended to the best advantage conferences have been held at which plans of procedure were worked out, and certain sections of the region needing assistance most urgently were designated. The latest and most effective methods of hunting and trapping wolves and coyotes as developed by the Biological Survey will be employed in this campaign. Similar operations for the destruction of predatory animals destructive of live stock are in progress in Montana and other Western States.

Nebraska Defeats Hog Cholera.

The work and vigilance of fifty county farm bureaus in Nebraska, supplemented by the cooperation of the United States Department of Agriculture, and the veterinary practitioners, have made the State practically free from hog cholera. From an annual loss which formerly amounted to millions of dollars, the losses from cholera during the current year will aggregate but a few hundred thousand dollars. The hog-raising sections of the State are now thoroughly organized and practically all of the farmers report the appearance of cholera as soon as any outbreak is evident. Vaccination now follows promptly any outbreak, and results in the disease being localized and quickly eradicated. The control measures have been executed so promptly during this year that the total amount of antihog cholera serum has been materially reduced. As a result several serum plants have large supplies on hand, the State plant having a considerable amount and one private plant reporting about 15,000,000 cubic centimeters in its possession.

To Inspect Every Herd for TB.

The Porter County (Ind.) District Shorthorn Breeders' Association has indorsed the State and Federal campaign to eradicate tuberculosis in cattle by arranging for the tuberculin testing of every herd in the association. The association is also arranging for a purebred club to be started in the spring.

Morgan Horse in Endurance Race.

In a 300-mile endurance contest with horses of the purest Arabian breeding, "Castor," a Morgan gelding bred by the United States Department of Agriculture at its Middlebury, Vt., Morgan horse farm, was the only horse with a clean speed record at the end of the fourth day of the grueling contest. "Castor" won third place for speed at the end of the contest, notwithstanding the fact that he fell in the deep sand on a bad bit of road, injured his nose, and made the last 5 miles in a walk. This achievement is an indication of what has been accom-

plished by the Department of Agriculture in the rehabilitation of the Morgan breed during the few years since the work was undertaken.

The race was from Fort Ethan Allen, Vt., to Camp Devens, Mass., largely over unimproved roads. The purpose was to stimulate interest in the breeding of Cavalry mounts throughout the United States. A majority of the horses entered were Arabians. One was a crossbreed that had seen overseas service and was the first horse to pass successfully through quarantine at Newport News. Two were Morgans, bred at the department's farm. The veteran of overseas service, "Bob," owned and ridden by Col. George, led the field at the beginning of the race, but was taken out before the finish. The two Arabians to finish ahead of the Morgan after his accident were Rustem Bey and Ramla.

Maj. C. A. Benton (retired) was one of the judges, acting as the representative of the Bureau of Animal Industry.

First Better-Sires Emblems.

Widely scattered sections of the country are represented in the list of the first recipients of the official emblem bestowed upon live-stock owners by the United States Department of Agriculture in connection with the "Better sires—Better stock" campaign now in progress. Possession of this emblem shows that the owner has agreed to keep and use only purebred sires of good quality, and will follow to the best of his ability breeding methods leading to live-stock improvement.

Emblem No. 1 was given to T. Y. Williford of Toombs County, Ga.; while emblem No. 2 goes to New York, F. E. Dawley of Onondaga County, being the recipient. The third emblem was granted to W. D. Stambaugh of Sarpy County, Nebr., the fourth to G. H. McBride of Toombs County, Ga., and the fifth to G. W. Herring, of Sampson County, N. C. The first woman to apply for an emblem is Mina A. Willis, of Montana. There is a wide range in the kinds and breeding of animals represented by these live-stock owners.

Death for the Argentine Ant.

One of the well-known pests of the Southern States, the Argentine ant, which occasions the housewife not a little trouble by its persistent invasions of every part of the home, has become particularly active this fall in injuring vegetable and flower gardens. Growers of orange and fig trees and beekeepers also report much damage to their products.

One of the most effective means of checking and driving out this pest is the use of a poisoned sirup, the formula for which has been prepared by the United States Department of Agriculture, and which will be sent free to any inquirer, together with instructions for the use of the sirup.

Chickens Kept from Crossing.

While keeping two distinct breeds of poultry in one yard without mixing the breeds seems difficult, it can be accomplished easily and with satisfactory results, as shown by the account of an experience just received by the United States Department of Agriculture from a New England poultry raiser. One of the kinds kept is a so-called egg breed, the other being a general-purpose variety of poultry. The method of preventing crossing is as follows:

One year, roosters of the egg-laying breed are retained and used for breeding, no other males being kept. The following year roosters of only the general-purpose stock are kept. The difference in the color of eggs of the two breeds selected is so great that hatching eggs have always been selected with certainty as to the breed laying them. The plan necessitates introducing new males, but the advantages of keeping the blood lines of two breeds separate outweigh the slight cost of purchasing the males. The Department of Agriculture points out that when this method is followed on two neighboring farms an exchange of roosters might readily be arranged.

When Two Wrongs Make Right.

Suppose that the grocer is unable to sell you enough sugar to amount to anything—which is not a supersuppositious case. And then suppose that the sweet potatoes, because of extra cold weather or lack of proper storage facilities, are about to rot—which, as any grower of sweet potatoes will admit, does sometimes happen. Something is wrong in both cases. The old adage says that two wrongs never make a right, but the United States Department of Agriculture files a dissenting opinion. The right of the two wrongs, the experts say, is to make the sweet potatoes into sirup. Sweet potato sirup is an excellent sweet.

"Sugar supplies only one substance of value, carbohydrates, to the living tissues of which our bodies are composed," says an expert, "while sweet potato sirup, in addition to the carbohydrates it contains, furnishes soluble and suspended proteins and a number of mineral salts, often in very rich supplies. It represents, to a greater or less degree, the concentrated essence of the vegetable and has a much less marked tendency to unbalance the diet—if, for the sake of brevity, one may be allowed so crude an expression—than do the pure sugars, starches, and fats." Sweet potato sirup is not difficult to make. It does not have to be subjected to chemical treatment other than malting, nor to a higher temperature than the boiling point, and that only long enough to cook the vegetable thoroughly and to concentrate the sirup to a sugar consistency sufficient to preserve it.

The making of sweet potato sirup is essentially a home industry. The Bureau of Chemistry has issued instructions as to the making of the sirup, and the States Relation Service has prepared a number of recipes in which sweet potato sirup is said to be superior to many other kinds of sirup and, in some cases, to sugar of any kind. All this material may be had free on application to the United States Department of Agriculture.

Dust-Free Mills Safe.

A striking poster printed in colors, telling in a few brief phrases a lesson which should be known by every employee in every grain and cereal plant in the country, has just been issued by the United States Department of Agriculture in cooperation with the United States Grain Corporation. The printed display is available for free distribution among all mill and elevator men and others directly interested in preventing dust explosions. "Dust-free mills and elevators are explosion proof" is the message proclaimed on the poster. Two illustrations, furnishing a striking contrast, supplement the wording. One, emphasizing the results of carelessness, depicts a grain elevator in flames, while the other shows a modern concrete elevator intact and typifies the benefits of cleanliness. In the latter clean plant, the poster explains, there is nothing to explode and the lives of working men are protected, and in consequence, property and food are conserved. In addition to these posters the United States Department of Agriculture has for distribution other publications setting forth the importance of guarding against dust in grain plants.

In buying canned goods do you get full cans? Firms handling good grades of canned vegetables, fruit, and meats indorse the activities of the Bureau of Chemistry, of the United States Department of Agriculture, in insisting that every canner give full measure. The public is entitled to full measure and any consumer who finds that the cans he or she has purchased are only partly filled will perform a public service by calling the attention of the grocer to this condition.

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FRESH, BROAD RURAL SURVEY IS ADVOCATED BY SECRETARY

Calling of Conference Definitely in President's Mind

Conditions Affecting Farmers Discussed in Address Before Agricultural College Representatives

The Secretary of Agriculture, David F. Houston, spoke as follows in an address November 12 in Chicago before the Association of American Agricultural Colleges and Experiment Stations:

"One year ago yesterday word came across the ocean that the armistice had been signed and that hostilities had ceased. Throughout the Nation celebrations were quickly organized and the people rejoiced. And they had good reason for rejoicing; for the strong enemy of free peoples had been crushed and the wholesale destruction of human beings had ended. Doubtless few of them dreamed that at the end of a year the Nation still would not have peace. Today there is for us and other peoples neither peace nor war; and there is not only the unrest, which is the natural heritage of war, but also the uncertainty and added difficulties which exist because of the failure finally to conclude peace. Few students of history imagined when the armistice was signed that this Nation or the world would quickly return to a stable condition. History clearly teaches the impossibility of quick adjustments after great wars. The Napoleonic war was followed by a long period of turmoil; and the difficulties for half a generation after our civil war are fresh in the minds of many of us. Still there were few of us who did not anticipate an earlier completion of the formal peace processes and a prompt exclusive devotion of governments to the work of liquidating the war.

World in State of Doubt

"It is not my purpose or desire to attempt to assign responsibility for the delay in making peace; but I may note, as we all must, the results of the delay. The whole world remains in a state of doubt and hesitation. The people of the new nations particularly can not make their plans with any confidence, because some of them do not yet know what their alignments will be or what kind of peace will exist when it does come. With the Central Powers our commercial relations have not yet been reestablished. In them we have no consular or trade agents, while some of the Allies, having ratified the treaty of peace, are laying their plans to occupy the commercial fields of Germany and Austria and are already engaged in trade with them. The difficulties of our situation are daily brought home to people throughout the Union, and particularly to executive and legislative officers; and the handicaps we shall suffer by additional delay are obvious. We are unable to determine the scale of our Military and Naval Establishments, intelligently to make a financial budget, or to plan our scheme of taxation. If the league of nations is to be a reality there is prospect of very considerable disarmament, with a consequent reduction in expenditure and taxation. It is imperative that this should occur. The war has shown clearly what military preparation means and what sort of armament we shall be compelled to maintain if a competitive military régime is to persist. Where, before the war, our Military Establishment entailed a burden of two or three hundred millions of dollars, it will hereafter on a competitive basis involve expenditures of not less than a billion and a half. Further embarrassment results from the fact that there is no way of determining the duration of emergency legislation. There are statutes which expire with the proclamation of peace. This may happen in two weeks or two years, and, therefore, business men and administrative officers do not know how to make their plans and form judgments. Production programs of all sorts are fundamentally affected, and disturbed conditions furnish agitators favorable opportunities for conducting their vicious

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SUGAR SUBSTITUTES IN FOODS MUST BE STATED ON LABELS

Harmful Substances, Including Saccharin, Are Prohibited

Object of Regulations is to Let Consumers Know What They Are Getting—Offending Goods Liable to Seizure

Substitutes for sugar or for other normal ingredients of foods should be declared on the labels of the packages of foods in which they are used, if the packages are shipped within the jurisdiction of the Federal Food and Drugs Act, say the officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of that act. Only substitutes which are harmless are permitted in foods under the terms of the law, and those that are permitted should be stated clearly on the labels.

The object of the regulation requiring that substitutes be declared on the labels is not to limit in any way the use of wholesome substitutes, the officials state, but to let the consumers know what they are getting. A purchaser of any food product, of which sugar is a normal ingredient, will naturally expect to get sugar in that product unless advised to the contrary. As the substitutes are usually cheaper than the substance for which they are used, it is only fair both from the standpoint of the purchaser and from that of fair trading, that a clear distinction be made on the labels between foods that contain all the normal ingredients and foods in which one or more of the normal ingredients is replaced by a cheaper substance.

Substitutes That May Be Used

There are a number of substitutes for sugar which can very properly be used in manufactured foods such as jams, jellies, marmalades, pops, soda waters, confections, and the like. Among the substitutes which may be used, if properly declared on the labels, are malt

sugar sirup, glucose, corn sugar, corn sirup, honey, and high-grade refiners' sirup.

Saccharin, a coal-tar product which has been widely advertised by its manufacturers as a sugar substitute, is not a proper or legal substitute, since it is held to be injurious to health, and as it has no food value whatever it lowers the quality of the food in which it replaces sugar, which has a high food value. The use of saccharin, whether or not declared on the labels, in foods coming within the jurisdiction of the Federal Food and Drugs Act is prohibited. The laws or regulations of most of the States also prohibit the use of saccharin in foods. A number of food manufacturers have been convicted for shipping into interstate commerce foods adulterated with saccharin. A criminal prosecution is now pending against one of the manufacturers of saccharin for shipping it labeled as harmless within the jurisdiction of the Federal Food and Drugs Act.

Liable to Seizure

Foods in which harmless substitutes have been used and no mention of the substitute made on the labels, if shipped within the jurisdiction of the Federal Food and Drugs Act, are subject to seizure and the party responsible for the violation of law is liable to prosecution.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended November 15, 1919:

Buckwheat. Farmers' Bulletin 1062.

Flat-headed Apple-Tree Borer. Farmers' Bulletin 1065.

The Mosaic Disease of Sugar Cane and Other Grasses. Department Bulletin 829.

Regulations for Grain Warehouses. Office of the Secretary Circular 141.

Revised Regulations for Cotton Warehouses. Office of the Secretary Circular 143.

Rules and Regulations of the Secretary of Agriculture Under the Food Products Inspection Law of July 24, 1919. Office of the Secretary Circular 144.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Canadian shippers have been exporting large quantities of eggs purchased in the United States, some going through Canadian ports and some through ports of this country.

MACHINE IS IMPORTANT IN POISONING OF BOLL WEEVIL

Essentials for Good Work Told in New Bulletin

Interested Persons Invited to Correspond with Laboratory in Louisiana—Three Types of Machinery Now in Use

Control of the cotton boll weevil by poisoning has been received so enthusiastically by farmers that, with present facilities for dusting-machinery production the demand can not be met, according to specialists of the United States Department of Agriculture under whose direction the poisoning system has been developed. Every effort should be made, they say, toward having as satisfactory as possible all machines that are put out.

Information in Bulletin

Many concerns that are considering manufacturing dusting machinery are not informed as to the requirements, and farmers are not so well informed as they should be on what constitutes a good dusting machine. To meet these two needs, Farmers' Bulletin No. 1098 is shortly to be published. It will give in detail the experiences of the department, extending through several years, with the various types of machinery. It will point out the particulars in which special care must be taken, both in manufacture and operation, and, generally speaking, will enable the farmer to detect the difficulties in advance of purchase and to protect himself from loss and possible failure of the poisoning operation. If there are questions not covered by the bulletin, interested persons are invited to correspond with the Delta Laboratory, Tallulah, La., where most of the experimental work has been done. The specialists in charge there will give the best advice possible to meet individual conditions.

Three Types in Use

There are three types of machinery now in use in cotton boll weevil poisoning. One is the hand-dust gun, another is a large machine mounted on a four-wheel truck and operated by an engine, and the third is an intermediate type on two wheels and operated by wheel traction. The hand gun, the specialists say, is not practicable except for very small areas or in conjunction with power machinery. The large machine has been found to be too complicated for the class of labor that must do most of the work. Being very heavy, breakage is frequent, moving from field to field is difficult and serious delays are hardly to be avoided. The wheel traction type of machine obviates many of the difficulties of both the other types and appears to be much the most promising machine for future use.

FRESH, BROAD RURAL SURVEY IS ADVOCATED BY SECRETARY

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propaganda. Obviously, the existing state of things make for ineffectiveness of national life in every direction and the persistence and perhaps extension of present burdens and sacrifices.

Unrest Lessening Production

"The present industrial unrest, in part a heritage of the war, is aggravated by our state of uncertainty. It is mounting higher and is crippling production at the very time when a paramount need of the Nation and of the world is a scaling down of prices and a reduction of the cost of living which, in the main, can result only from increased production and thrift. Practices are resorted to which greatly increase the already heavy burdens of industry and thwart the efforts of private and governmental agencies to furnish relief. Increased wages are demanded to meet the high cost of living and higher prices are asked to cover increased cost; and so the Nation faces a process of pyramiding which, if not checked, will lead to industrial collapse and untold suffering. I do not undertake to pass judgment on the strike as a weapon for labor in normal times. But one thing is certain. In existing circumstances, it can only check production, lessen the volume of national wealth to be distributed, and increase the cost of living, not only for labor but for all the other citizens of the Republic. Another thing is certain. It is not a remedy to which labor ought to be forced to resort. It is a crude way of settling a dispute, as war is; and it is not creditable to us as a Nation that we can not find another and better way—that we can not establish conditions which will make a strike a thing of the past. All the people of the Nation are bearing the burden imposed by reduced production and no one class in society can hope to escape it at the expense of all other classes. 'We must unite, not divide, to correct the evil.' This Nation needs now to feel the patriotic impulse quite as much as it did during the war. If the preservation of the liberties of the Nation was worth fighting for surely the opportunity victory has brought to pursue unhindered the tasks of improvement should call out our best impulses. Peace has her need for patriotism no less in-

tense than war; and the trouble seems to be with us, as Lloyd George said of the English people, that we have demobilized patriotism too soon.

Effect on Farmers

"Present conditions bear with peculiar weight on the farmers of the Nation. It is not improbable that natural economic forces operating during the ensuing twelve months will produce a slow decline in prices and that, in spite of anything that can be done, the reduction may be more marked in the case of agricultural products. This may result from the fact that agricultural production during the war was not only maintained but extended, while industrial production for nonmilitary purposes decreased in some directions; that Europe may recover more rapidly agriculturally than industrially; and that the opening up of shipping will bring back into the markets of Europe the products of more distant nations. It is reasonably clear that Europe will be hard pressed for food supplies, at least until after the harvest of 1920. Russia is likely to be a negligible factor so far as exports of foodstuffs to other nations are concerned. European countries in the aggregate probably will not produce this year more than 70 per cent of their prewar normal output. Apparently Poland, Austria proper, and Italy will be in especially difficult circumstances; and all the central and western European nations will be compelled to import larger quantities of cereals and meat products. The quantities they can secure will be limited, in part, by their impaired ability to pay for them. They are seeking credits not only for food supplies but also for raw materials for their industries. Obviously, they can devote only a part of the credits they receive to the purchase of foods. Unquestionably, they will attempt to obtain these in the cheapest markets. Before the European war Great Britain, the principal food-importing nation, secured most of her beef from her colonies and from Argentina. In 1913 her imports of beef from Argentina and Australia amounted to over 8,500,000,000 pounds. They decreased during the war until in 1918 she was receiving from these countries only 2,555,000,000 pounds, while, on the other hand, her imports from the United States rose in the same period from 1,462,000 pounds in 1913 to 3,583,000,000 in 1918. Shipping is opening up again and there are indications that the United Kingdom is once more turning to her former sources for supplies of beef. The exports of beef (including oleo oils) from this country to the United Kingdom during July of this year aggregated 5,300,000 pounds as against 72,000,000 in June, 1918, while the exports of pork (including lard) during July of this year amounted to 154,000,000 pounds as against 220,000,000 in June, 1919. Although the United States will be called upon to furnish Europe large supplies of food, certainly until after the next harvest, it appears that there is already a tendency for the exports of certain products to decline; and it may be, if Europe has good seasons next year, that our exports may return toward the pre-war normal. We shall soon be concerned with the planting program of our farmers for the spring of 1920. In view of all the circumstances, it seems that it would be wise for the same suggestion to be made to them as was made in the early part of the year, namely, that they should practice safe farming, returning to a balanced agriculture and to the operations best suited to their own individual and community conditions.

"While economic forces may be the main factors in reducing the prices of farm commodities, they will not be obvious to many people; and there will be a disposition to attribute any drop in prices to the action of Government or of private agencies. The impression seems to have got abroad that the Government was concerning itself only with the prices of foodstuffs and that the farmer would be hit first and exclusively. That such was the Government's intention is, of course, far from the truth. Its object was primarily to prevent profiteering in all the necessaries of life and it is as much concerned in preventing profiteering in manufactured products as in food products. The Attorney General, in seeking power to deal with the problem, asked Congress to extend the control act to cover manufactured necessaries, which was done, and has instructed his agents to give special attention to dealers in such commodities.

Every Producing Class Must Do Its Part

"The trouble is that the press in discussing the cost of living thinks almost exclusively in terms of food and limits its statements principally to such products. The difficulty has been increased by the fact that not a few business men have asserted that the cost of living can not be reduced unless the prices of foodstuffs fall, and that the prices of foodstuffs will not fall unless there is greatly increased production. Obviously, it is useless and unjust to ask farmers to increase production, buying what they have to buy at the present scale of prices, with the intimation that, at the end of the crop year, their products will fall in price and that then the manufacturers will consider what they can do in respect to their products. Certainly it is desirable to return to a stable condition at as early a date as possible. Every class of producers in the country must do its part and manufacturers should be willing to make at least a contemporaneous reduction in the prices of their products.

Some Prerequisites for Rural Contentment

"Many people ignorant of rural problems talk and write as if farming were not a business and as if food production did not involve the expenditure of capital and labor. The demand of the city is for cheap food and that more abundantly. There are those who talk as if there could be an unlimited number of farmers. This may have been true when the farm was self-sufficient and produced little or no surplus. But, obviously, to-day there should be, and, in the long run there will tend to be, enough farmers to produce their proportion of what the world will buy at prices which make production profitable. Certainly farming must pay. There will be farmers enough if the business of farming is made profitable and if rural life is made attractive and healthful. The farmer, as well as the industrial worker, is entitled to a living wage and to a reasonable profit on his investment. He is entitled also to satisfactory educational opportunities for his children and to the benefits of modern medical science and sanitation. When these requirements are met there will be no difficulty in retaining in the rural districts a sufficient number of contented and efficient people. What we need is not back to the land propaganda, but an acceleration of the work for the improvement of the countryside which will render the abandonment of farms unnecessary and the expansion of farming inevitable. I am sure that the farmers of the Nation are perfectly willing to do their part in producing and saving if all other producers in the Nation will set about doing their part.

Need for Fresh Rural Survey

"Present conditions, and particularly present states of mind, indicate the need of a fresh, broad survey of rural life, of its special problems, and of its relationships. It should be viewed as a whole. A comprehensive flexible program should be developed for the guidance of the different agencies, each of which has its peculiar functions and responsibilities. Furthermore, the principles and purposes governing agricultural life and agencies should be set forth for the education of the American public, particularly the urban part of it. The Nation as a whole needs a fuller

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Weekly News Letter

Published every Wednesday by the
Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

INABILITY to obtain paper has delayed this and the preceding numbers of the Weekly News Letter.

RECORD STOCKS OF WOOL SHOWN BY RECENT SURVEY

Dealers, manufacturers, and the Government held 729,373,000 pounds of wool, grease equivalent, on September 30, 1919, according to the Bureau of Markets, United States Department of Agriculture. This represents holdings in excess of those reported in any quarterly period since the reports were first issued. Stocks on September 30 were 8 per cent greater than on June 30, 1919, and 50 per cent greater than stocks held on September 30, 1918.

At the present rate of consumption the bureau points out that the total stocks on September 30 are sufficient to last for more than a year. The greatest increase in holdings is shown in one-fourth and three-eighths blood grease, amounting to 42,000,000 pounds. Because of the great demand for fine wools the reports show a decrease in fine and one-half blood grease amounting to 9,000,000 pounds. Both manufacturers and dealers hold more of all grades with the exception of fine wool. A decrease of 22,000,000 pounds of fine wool holdings compared to June 30 is shown for dealers' stocks, while manufacturers' holdings of this grade increased 5,000,000 pounds.

Total stocks in the hands of dealers and manufacturers on September 30, 1919, in pounds according to grades were: Grease wool, 388,564,892; scoured wool, 45,626,163; pulled wool, 22,325,546; tops, 18,732,272; noils, 13,006,594. Stocks held by the Government were: 17,790,000; pulled wool, 8,705,000; tops, 1,448,000; noils, 10,000.

Boston holds first place among the markets of the country with 156,000,000 pounds of all kinds and classes. Philadelphia ranks second, followed closely by Chicago. Manufacturers in Massachusetts held 91,000,000 pounds; Rhode Island, 33,000,000; and Pennsylvania, 29,000,000.

THRASHING AND STORING TO SAVE SOY-BEAN SEED

Soy-bean seed now is of considerable value, and it is essential that all farmers who have raised it thrash and store it so as to prevent deterioration and loss.

The ordinary grain separator can be adjusted to thrash any beans successfully, but this machine, if equipped to thrash small grains, must be readjusted when soy beans are to be thrashed, as otherwise a large percentage of cracked seed will result. The chief cause of split beans is the high speed of the cylinder, which should be reduced at least one-half, although the speed of the fans and other parts of the separator may be maintained at normal.

Special pea and bean separators of different sizes are now on the market. These types of machines do clean hulling and split practically none of the beans. Undoubtedly such separators are more satisfactory and economical where a considerable acreage of beans is grown. In sections where there is an extensive seed production, investment in such a machine by a community would be profitable.

Soy beans, if thoroughly dry, can easily be thrashed with a flail. If one has only a small acreage—an acre or so—this method is practical and economical. In a few sections, a corn shredder has been used to advantage in the thrashing work and where the beans are properly cured and dried, the seeds shell out readily when run through this machine.

Soy beans which have been stacked out of doors or housed in the mow previous to thrashing should be thrashed when the weather is dry and suitable for work of this character. Thrashing should not be attempted until the beans have passed through a thorough sweat and subsequently cured so that the seed is separated readily from the straw.

The straw obtained from thrashing the soy bean for seed is a valuable feed for all kinds of live stock. In many localities the straw is baled at a time of thrashing and sold.

As soy-bean seeds spoil rather easily if not properly handled, care should be exercised in curing and storing. After the beans are thrashed they should be Grease wool, 106,209,000; scoured wool, watched carefully to avoid heating and moulding. When thoroughly dry, there is no such danger. The best plan, according to specialists of the United States Department of Agriculture, is to spread the seed out on a floor immediately after thrashing and subsequently shovel them from time to time until they are thoroughly dry. The storeroom should be dry and have a free circulation of air. Soy-bean seed loses its viability rather rapidly and it is not safe to hold seed for planting purposes more than two seasons. The seeds of the soy bean, unlike those of the cowpea, are rarely attacked by weevils or other grain insects.

CUT CHRISTMAS TREE WISELY AND CONSERVE THE FORESTS

A particularly appropriate opportunity to display the Christmas spirit, according to officials of the Forest Service of the United States Department of Agriculture, is the manner in which persons getting Christmas trees direct from the forests cut the evergreens for their holiday celebration. Each year thousands of dwellers in towns and cities near the national forests or privately owned forests turn to these tracts for trees which are to be the central features in yuletide decorations. Where the trees are cut in accord with the recommendations of the Forest Service no harm is done, but the tendency of many is to slash into the growth without regard to conserving the forest's resources.

The point particularly emphasized by the Government's foresters is that a tree selected for cutting should be one which is part of a group of trees of comparatively compact growth rather than a more or less isolated tree, the absence of which would make a decided gap that future growth could not fill.

Objection is sometimes made to selecting for Christmas purposes a tree standing close to others, because the one chosen is apt to be unsymmetrical, the lower branches particularly being irregular and unattractive. This difficulty can be overcome by selecting a tree several feet taller than the height desired and cutting off the lower end.

Wherever possible local Forest Service officials are glad to recommend areas under their jurisdiction in which it is entirely proper to make cuttings of Christmas trees.

Very large trees selected for municipal celebrations or church use need not be symmetrical in their natural state, as they can easily be made so by boring holes in the trunk and inserting sufficient limbs of proper size to give the tree a well-rounded appearance.

FRESH, BROAD RURAL SURVEY IS ADVOCATED BY SECRETARY

(Continued from page 3.)

appreciation of its basic industry, and a more definite sense of direction of its efforts to foster it. Many agencies are now following more or less well defined, helpful plans of their own devising, but these are at best piecemeal, and there is confusion of leadership and objectives. A program made by any one element would be partial and unsatisfactory. We should have a meeting of minds of all those directly concerned, of farmers, of agricultural leaders, and of business men. This need was ably presented by your president, Dean Davenport, and by Dr. Butterfield, and I need not enter into details. My present suggestion is that there should first be held a relatively large conference, and that the matter of setting up a small temporary or permanent commission be then determined.

"The calling of such a conference is very definitely in the President's mind. In connection with the recent industrial conference, he authorized me to make it known that he intended to ask for another meeting which would deal especially with problems which more intimately concern farmers. The industrial conference was expected to consider only the problem of the relation of employers to employees in manufacturing, and he invoked the aid of six agricultural representatives to assist in its solution, deeming this number adequate in the circumstances. The conference now suggested would, of course, call for a very generous representation of farmers and agricultural leaders.

Service of Colleges

"I keenly recognize that the agricultural colleges of the States, like the Federal Department itself, are now confronted with unusual difficulties and are laboring under serious embarrassments; and yet in the midst of these they are called upon to render even more urgent service. I have long had an exalted opinion of the value of these institutions to our democracy. Recent events have caused me even more highly to prize them and more clearly to recognize their need. They have made it singularly clear that agricultural institutions must omit no step to add, through research and experiment, to the sum of our scientific knowledge. In some instances, available information has proven to be fragmentary. In others, there were no results at hand on which to base intelligent conclusions. Up to a short time ago, investigation had seemed to run ahead of facilities for conveying information; but with the improvement in publication activity, the expansion of the agricultural press, and particularly the firm establishment of the extension service, the danger is now rather that our teaching may outrun the accumulated stock of knowledge and become sterile. Of course, neither the problems of production nor those of distribution have been solved. As economic conditions change and become more complex, new and vital research problems will arise. The Nation should have a well-balanced program, not only of instruction, but also of research. To this end, it must secure and retain the services of its most talented scientific and practical men; and this means something in terms of dollars and cents. It means that we must not only place the investigator on a higher financial plane but also give those who have talent funds and facilities in generous measure. It is increasingly clear that, in all positions of responsibility, the State and the Nation must be prepared to secure and retain men of the requisite training and experience and to make the conditions sufficiently attractive. Our democracy is today threatened with inefficient service because of its failure to provide a reasonably decent compensation for men of capacity charged with large responsibilities and our democratic arrangements may either break down or result in commonplace performance, if reasonable requirements are not met.

Safeguarding Democracy

"But the agricultural colleges of the country owe a duty outside their technical field, outside their fields of investigation and technical education. They are charged, as I conceive it, with something more even than the task of improving farming. Present conditions point to the need of leadership along broader lines in rural as well as in urban districts. We can not too frequently refresh the minds of all our people as to the nature and meaning of democracy, of our Governmental institutions and ideals; and there is in rural districts, as well as in urban, a considerable body of people, many of them recently come among us, unacquainted with our institutions and purposes, familiar only with conditions radically different from ours, who certainly need a sympathetic induction into American life and the most energetic assistance that all our educational institutions can furnish.

"Some of them need more than this. They need to be taught the very elements of democracy and the meaning of the rule of law. The people of this country are committed to the rule of the majority and to the rule of law. There is no good cause which can not get a hearing from our people. It is the privilege of men who advocate it to persuade the majority that they are right. If they can, they can secure what they seek at the polls. If they can not, they must abide by the will of the majority or suffer the penalty. Not to do so is treason to the majority. The majority will not tolerate any effort of a misguided minority to impose its will by violence. It does not intend to live under the spell of threats and menaces. And the average American will not be patient with those who say that if they do not like a law they may not obey it.

No Class Rule

"Nor will the American people have any patience with those who advocate the dominance or rule of any class. Democracy arose on the downfall of a class. Our forefathers did not want class rule. They deposed such autocrats as the Stuarts, the Bourbons, and their adherents, who sought to tyrannize over the masses. There is no one class in society that has sense enough to rule all the others. Any one class would make a sad failure of governing this Nation or any other. History teaches that lesson very plainly. I am in favor of improving our Government whenever the need for improvement is demonstrated, but not of upsetting it. There will and must be changes, but these changes must be discussed and made according to the processes of law and of American life and institutions and not according to the whim of some class. The American people are still committed to the theory of representative government, of government made up of representatives of all the people. I do not believe they will substitute for it representation of groups of interests with a struggle on the part of each group to dominate; and I think that they will not accept the theory that employees of the Government, municipal, State, or Federal, may strike to secure what they wish. I am unable to see how a group of individuals can claim the privilege of striking against the body politic without arrogating to itself the position of supremacy over the people. It is time for very plain speaking and for the inculcation of some very commonplace truths. We are all in sympathy with rational proposals for the improvement of the masses of the less fortunate people of the Nation and of the world, but this improvement must come by orderly processes. And we must recognize that, after all, the real progress of humanity is slow. In times like these, progress is rapid, but not so rapid as it

seems to some. During great upheavals, people have not infrequently thought that they have got very much further than they actually have. They have got more out of the experience than there was in it. France did this at the end of the eighteenth century, when she enthroned reason and thought that she had got, in a few years, to a point she has not yet reached. Russia is now making the same blunder.

Standards of Conduct

"What we need is cool judgment, open minds, regard for facts, and courage to follow conclusions based on them. These characteristics the institutions of learning of the Nation are peculiarly fitted to inculcate. Let us have debate, criticism, and progress by all means, but let us have constructive criticism, and let us have progressives who know where they are headed and why. Let us demand that our public men, and the agencies whose task it is to inform and lead public opinion, shall show a conscientious regard for facts and give the people helpful interpretations of them. This is no time for mere partisan tactics, for personal abuse, and for misrepresentation of men, policies, and institutions. Men of any party in responsible positions, or of the press, who make statements which they know are not true—or, what is quite as pernicious and more common, statements they do not know to be true—only contribute to the spirit of unrest and irritation and tend in no small measure to furnish justification to ignorant or evil-minded persons among us for their acts of violence and crime. They assume a grave risk and will not escape their share of responsibility for what may happen.

I confidently call upon the universities and colleges here represented more energetically to lead the educational forces of the Nation in the patriotic task of keeping before the minds of all our people the meaning and value of our institutions, of Americanizing our population of recent foreign extraction, of strengthening our useful national habits of thought, and of holding our publicists and public men to high standards of utterance and action.

Shippers of potatoes will profit by heeding market demands and preferences. Dealers and consumers do not desire badly cut, mashed, frosted, and decayed potatoes or those damaged by sunburn, blight, dry rot, or an excess of scab or second growth. Markets frequently are overloaded, prices seriously affected, and unnecessary losses sustained by growers because of the shipment of such unsatisfactory stock.

SWEET POTATOES REQUIRE VERY CAREFUL HANDLING

Elimination of Field Diseases and Good Storage Necessary to Keep Them

Growers Could Command Much Better Prices by Practices That Would Defer Selling Until Late in Winter

Sweet potatoes deserve as careful handling as apples. In fact, they will not stand the rough handling that apples are often subjected to in grading and packing.

This statement may surprise many sweet-potato growers who are not in the habit of taking pains to avoid bruising this product. The question of proper handling of sweet potatoes is one of several points touched on in a publication just issued by the Bureau of Plant Industry of the United States Department of Agriculture, Farmers' Bulletin 1059, entitled "Sweet Potato Diseases."

One of the chief barriers to the extension of sweet potato growing in this country is the inability of farmers to keep sweet potatoes in storage so that they can be placed on the market in winter when prices are good. Consequently most of the crop grown in the South is consumed locally or sold at digging time when prices are low. A few sweet potatoes go to northern markets in winter, and even in the South they can not be obtained with any degree of certainty at that season. Specialists of the Department of Agriculture believe that if storage methods and principles were better understood, far more sweet potatoes would be available for winter use.

Must Fight Diseases

However, the success of the industry does not depend on careful handling and successful storage methods alone. There are several serious field diseases, as this bulletin points out, the best known of which are black rot, stem rot, and foot rot. The storage of sweet potatoes affected with black rot must necessarily result in heavy loss since the disease spreads rapidly throughout the bins. Stem rot, on the other hand, does not produce any marked decay in storage, but it may open the way for storage rot organisms to enter the potato. It is imperative, therefore, that the elimination of field diseases supplement a well-regulated system of storage.

After sweet potatoes are dry and the surface moisture has dried off they should be carefully laid in containers holding about a bushel and hauled to a storage house. If the potatoes are to be stored in bins they should be poured carefully from the containers into the bin. There are some advantages in storing in crates rather than in bins. Crates permit the free circulation of air among the potatoes, a condition which can not be so readily obtained if they are piled in a bin. The crate has an added advantage in that by its use as many potatoes can be taken out for the market at any one time during the winter as are desired without disturbing the remainder. Sweet potatoes will not stand frequent hauling, and for that reason it is unwise to disturb a pile or bin unless they are all marketed at the same time. The use of crates eliminates this difficulty.

Dig Late for Storage

Potatoes intended for storage should be dug as late in the fall as is consistent with weather conditions. This is usually just preceding frost or after the first light frost. Frozen potatoes will not keep, and it is likely that a heavy frost will injure them to some extent. It is advisable after a heavy frost to cut the vines at once and dig. To wait too long may mean that in order to avoid freezes the potatoes must be dug during bad weather. After the potatoes are dug they should be left exposed long enough to dry off the surface moisture. On a bright day this would require but an hour or two. On a very hot day, however, it would be desirable to hurry the potatoes to the shade after their surfaces have been dried in the sun.

While sweet potatoes sometimes keep well stored in banks or pits this method of storage is not at all reliable, as temperature and moisture can not be controlled. In a well-constructed storage house these conditions are under the control of the operator.

Full details on storing sweet potatoes are contained in Farmers' Bulletin 970 of the United States Department of Agriculture.

NOW IN NATIONAL FORESTS

Congress has set apart 1,116,000 acres of land in Idaho known as the Thunder Mountain region as national forest lands. This great tract, difficult of access and having not over 1 per cent of its area suitable for agriculture, has for years been the scene of destructive fires and devastation due to overgrazing. It is now to be added to the Payette National Forest, which adjoins it on the south and west, and the Idaho National Forest, which adjoins it on the north and west.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

States in Marketing Work.

That marketing problems are being given more and more attention by State governments is shown by a survey which the Bureau of Markets, United States Department of Agriculture, has been conducting.

Following the example of the Federal Government, 30 States have established bureaus of markets or similar agencies to study the buying and selling of farm products. Four State legislatures have created such bureaus this year. The model law prepared by the Bureau of Markets has been adopted by one State with practically no change and has been incorporated wholly or in part in the laws of several other States. In a few cases State departments of agriculture have begun marketing work under authority of general clauses in their laws.

The activities of the bureaus vary from simply studying the conditions affecting marketing, through regulation of marketing practices, to the actual buying and selling of farm products. This latter activity, however, has been discontinued in at least one State. Most of the bureaus have authority to establish grades and standards, inspect farm produce, and maintain market news services.

Disease Stops Imports.

The importation from England of cattle and all other cud-chewing animals and swine is being held up by the United States Department of Agriculture on account of an outbreak of foot-and-mouth disease in the Isle of Wight. The present ban will be in force until from 30 to 90 days have elapsed after all the animals exposed to the malady have been disposed of and the premises affected have been thoroughly disinfected.

This last outbreak occurred late in October, and is the most recent of several which occurred at irregular intervals in different parts of England during 1919 and 1918. Some of the previous outbreaks have been in Warwickshire and Dorsetshire. At different times the Department of Agriculture has been on the point of resuming importation, when the disease would be discovered in a new region. Dealers have put in applications for permits to import a total of 850 cattle, but have been prevented from doing so on account of this ban. Probably there are many others who have not yet made formal application for permits to the department. All of the cattle to be imported from England are purebreds.

Texas Against Scrub Sire.

Texas has joined the "Better sires—Better stock" campaign of the United States Department of Agriculture, and some Texans are already whetting their pencils in preparation for writing the obituaries of the countless mongrel males which are destined to walk the gang plank. The Texas plan of scrub eradication is to standardize the work around the county agent, allowing each county agent to disseminate information and formulate plans for the abolition of the scrubs largely as he sees fit in accord with the conditions operative in his community. The Texas activities against misfit breeding animals are typical of those which are extending throughout the South.

Oats, Wheat, Barley Lighter.

The weight per measured bushel of wheat this year is 56.3 pounds, as against 58.8 pounds last year and 58.2 the 10-year average. The weight of measured bushel of oats is 31.1 pounds, as against 33.2 pounds last year and 46.5 pounds the 10-year average. The corresponding figures for barley are 45.2 pounds for this year, 46.9 pounds for last year, and 46.5 pounds for the nine-year average, according to the Bureau of Crop Estimates, United States Department of Agriculture.

Inspection Service Extended.

The inspection service for shipments of fruits and vegetables started in 1917 by the Bureau of Markets, United States Department of Agriculture, has been extended to cover 150 designated markets. The certificates issued by inspectors upon request state the condition of interstate shipments as they arrive at market centers and are used as a basis for settling claims that may arise between shipper and consignee.

Inspectors Detect Diseases.

To detect local outbreaks of diseases of vegetables and fruits, which when uncontrolled cause heavy losses in the field or in transit, the food products inspectors of the United States Department of Agriculture are reporting diseases found in shipments of produce at the leading market centers of the country. If a shipment shows a serious disease or rot, the county agent and other representatives in the locality affected are at once notified and instructions given for overcoming or minimizing future losses. The notification to the point of shipment also prevents shippers from continuing to ship material certain to spoil in transit and thus waste car space.

Free Plans for Granaries.

"Knock-down" or portable granaries can be used to care for wheat on the farm, plans for which have been published by the United States Department of Agriculture. The use of these storehouses often enables the grower to market his produce with better profit. The plans can be obtained free on request.

Indiana Treats Rats Roughly.

Twenty-eight Indiana counties have waged intensive war against rats, in cooperation with the United States Department of Agriculture, through the Bureau of Biological Survey. A special day was set apart for this purpose, at which time, according to the official casualty list, 57,100 rats "went west." Complete figures are not available, but estimates are to the effect that several hundred thousand rats ended their earthly careers on "rat drive day."

The economic value of rat extermination is considerable, especially to the farmer, as a single rat will easily destroy one bushel of corn a year and at the same time officiate as a special messenger for the spreading of disease. Rats are very prolific, producing from 6 to 10 young in a litter and more than 6 litters a year, a fact which makes the rat a most formidable enemy. Notwithstanding the enormous loss directly traceable to them, people are not yet easily awakened to the fearful menace of these pests and the importance of ridding the country of them. Recommendation has been made by the agricultural authorities that the governor of Indiana appoint a special "rat day" each year, in order that this campaign may be annually continued. During the recent campaign Knox County led

in the total number of rats killed, the inhabitants of this territory slaughtering 10,000 of the marauders.

Danger in Raw Pork.

At this season there is especial danger of illness following the eating of pork that is raw or only partially cooked. Of course, most Americans do not knowingly consume uncooked pork, although it is eaten not infrequently either as raw ham or in sausages that have been insufficiently cooked. At hog-killing time particularly there are many homemade meat products prepared on the farm, and consequently special care should be taken to make sure that pork, before it is eaten, is sufficiently cooked.

The disease known as trichinosis, which may result from eating raw or imperfectly cooked pork, is caused by microscopic worms known as trichinæ. These parasites in years past have been found to be present in 1 out of 71 hogs, and if the presence of dead trichinæ and trichina-like bodies is included in the count, an average of 1 out of every 39 hogs has been found affected. Unlike many other infectious diseases, the severity of the attack of trichinosis depends upon the number of parasites swallowed. Large quantities of slightly infected pork must be eaten in order to produce bad effects; but, on the other hand, severe illness may be caused by eating small amounts of pork that is heavily infected.

Stocks of Old Corn Reduced.

The stocks of old corn on farms November 1 is estimated at 72,263,000 bushels, which is 2.8 per cent of the 1918 crop. The corresponding figure a year ago was 114,678,000 bushels, and the average of the preceding five years was 87,277,000 bushels.

Eastern Mystery Penetrated.

There are mysteries of the far and ancient East that, now and then through the centuries, may be penetrated by the occidental mind. Some of them have been—and one of them is soy sauce. That substance, they say, has gone into all the meat sauces—all the good ones, at least—that the Western world has consumed through all the years. But it has been made only in the Far East—in Japan and China. Now, it has been made in the United States—by the Government of the United States, through its fermentation experts in the Bureau of Chemistry of the Department of Agriculture.

The work has been going on only about a year, and it is said to take five years to make some qualities of soy sauce, but the specialists have turned out a sauce that has the beautiful golden-brown color of the oriental output and that has a flavor much finer than the specialists themselves hoped for at the outset. The work will continue through other years, but, in the meantime, negotiations are pending with manufacturers who will probably produce it on a commercial scale in the United States. The work was begun with the aid of a professor in the University of Tokio, and has been carried forward by workers in the Bureau of Chemistry who worked with him.

The first step is to make a mixture of soy beans, boiled until they are fairly soft, and wheat, roasted until it is a little more than brown, and then crushed. To this there is added a small quantity of a mold known as the yellow-green aspergillus. The mixture is allowed to ferment, under definite conditions of temperature and humidity, for at least two and a half days. Then it is put into a brine strong enough so that the ultimate product will contain from 16 to 18 per cent of salt. There it remains for from six weeks to five years, according to the quality of sauce desired. It is stirred every day, in order to give a measure of aeration. Finally, the finished sauce is pressed out.

The Japanese use this sauce in cooking meats, soups, rice, and other dishes. Its principal use in occidental countries has been for mixing with the other ingredients of meat sauces. Its manufacture in the United States will afford an additional means of utilizing the soy bean, which recently has taken its place as one of the important leguminous crops of this country.

Studying Insect Killers.

The development of methods for the manufacture of cheaper and better chemical compounds to kill insects and fungi which destroy large quantities of fruits and vegetables each year is the object of experimental work recently undertaken by specialists in the insecticide and fungicide laboratory of the Bureau of Chemistry, United States Department of Agriculture.

The high cost of copper, which is an essential ingredient of the fungicide known as "Bordeaux mixture," has led to experiments to determine whether a Bordeaux mixture can not be prepared which will be more effective for each unit of copper present than as usually prepared, thus resulting in a saving of this expensive constituent of the Bordeaux mixture.

Studies also will be made of the manufacture of Paris green, lead arsenate, and other compounds of arsenic. No systematic study of all the compounds of arsenic that might be useful in spraying has been made, and it is thought probable that such a systematic study will lead either to the development of cheaper sprays, because the constituent elements are cheaper, or to sprays that are more effective than the sprays now used.

Nicotine as an insecticide will be studied with a view of developing possible substitutes for it, since there are a number of compounds which resemble nicotine in chemical and toxic properties. It is hoped to develop something that will be cheaper and even more effective than nicotine. A study will also be made of the best and cheapest methods of extracting nicotine from tobacco products on the farm. Compounds of lime, sulphur, and other compounds which may be used as insecticides and fungicides will be investigated.

Commercial methods of preparing insecticides and fungicides will be studied under practical conditions of preparation with a view of developing cheaper and more effective methods for manufacturing them.

The efficiency of the insecticides developed and the question of whether or not they are injurious to growing fruits and vegetables will be determined by field experiments conducted by the Bureaus of Entomology, Plant Industry, and Chemistry.

A method for preparing a commercial grade of calcium arsenate has been worked out and a patent obtained for the process. The patent has been dedicated to the public, and any manufacturer may use it. The results of the investigation and a description of the process for preparing calcium arsenate have been published in Department Bulletin 750, which may be obtained upon application to the United States Department of Agriculture, Washington, D. C.

CIVIL-SERVICE EXAMINATION

An open competitive examination for scientific assistant, for both men and women, on January 7 and 8, 1920, is announced by the United States Civil Service Commission. Vacancies in the Department of Agriculture, for duty in Washington, D. C., or in the field, will be filled from this examination. Entrance salary ranges from $1,320 to $1,620 a year, but persons showing in their examinations that they are unusually qualified are occasionally appointed at higher salaries, not to exceed $1,860 a year. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

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ECONOMY IN BEEF PRODUCTION COMES FROM BETTER BLOOD

Good Herd Bull is First Step Toward Better Calves

Methods of Fattening Animals, with Troubles That Producer Must Meet, Discussed in New Farmers' Bulletin

The use of more and better purebred sires is a dependable method of decreasing the costs of rib roasts and beefsteak, because cattle of better blood make more economical and rapid gains than do their scrub-ancestored rivals. Buying a good herd bull is the first step in growing better calves at much less cost per pound. In common or native cow herds, calves sired by purebred bulls weigh on an average about 125 pounds a head more when one year old than youngsters of the same age sired by the average run of scrub bulls, and they will sell for about 2 cents a pound more as stockers and feeders. Two-year-old steers sired by good purebred bulls weigh on an average about 200 pounds a head more than steers parented by scrub bulls, and sell for about 4 cents a pound more as stockers and feeders. This difference in price of the two classes of calves and steers applies not simply to the difference in weight, but to the total weight. For instance, in the case of yearlings, scrubs weigh about 300 pounds and sell for about 9 cents a pound, while grades at the same age weigh about 425 pounds and will sell for 11 cents a pound. Two-year old scrubs weigh about 525 pounds a head and, valued at 8 cents a pound, will bring $42 a piece, while grades of equal age weigh about 725 pounds and, at 12 cents a pound as stockers and feeders, bring $87.

Good Care for Bull

The bull should be the best cared-for individual in the herd. Not only should he have the proper feed, but he should also be kept in a separate paddock or lot and should not have the freedom of the herd except during limited seasons of the year. Unless a special lot can be provided, some means of giving the bull exercise should be devised.

Next to the bull, the cows merit careful attention. Breeding cows of large, roomy, vigorous type, possessing strong constitution as indicated by a wide, deep conformation, with a good chest or heart capacity, strong, clean-cut muzzle, bright eye, and alert but gentle disposition should be chosen as foundation stock. Cows of good quality, that prosper on limited feed rations, as indicated by their uniform fleshing, loose, pliable skin, glossy coat of hair, and, in general, animals which are not coarse or rough in any respect, should be selected for breeding purposes. Such cows usually produce sufficient milk to nourish their calves properly. It should be the aim of every beef owner to select cows for the breeding herd which will gradually and consistently improve the average of the progeny. At least these are the recommendations of the United States Department of Agriculture as set forth in Farmers' Bulletin 1073, "Growing Beef on the Farm," which has just been issued.

There are three general systems of handling beef-breeding herds, in respect to whether beef, baby beef, or dual-purpose operations are the ends sought.

(*Continued on page 6.*)

TEN RULES OF BEEF PRODUCTION

First. Plenty of pasture and feed.

Second. The right kind of cows—those that will produce good calves regularly.

Third. A good, purebred registered bull—one that will sire good calves persistently.

Fourth. A large calf crop. This means that all cows shall drop calves, and that the calves shall be properly cared for at birth.

Fifth. Proper care of the breeding herd and the calves.

Sixth. Selection of good heifer calves to replace old or inferior cows.

Seventh. Prevention of disease among the breeding herd and the younger stock.

Eighth. Shelter sufficient to protect the cattle from both severe cold and extremely hot weather.

Ninth. A practical knowledge of fattening cattle for market.

Tenth. Marketing to advantage.

SILAGE WILL BE QUERIED IN AGRICULTURAL CENSUS

Modern Conveniences Also Included Under New Subjects

Copies of Schedule Will Be Supplied in Advance to Farmers Who Request Them from Bureau of the Census

Among the new features included in the approaching 1920 census of agriculture will be a series of questions relating to the amount of corn and other crops raised for silage purposes. These statistics on silage, which are to be collected by the Bureau of the Census in accordance with the recommendations made to that bureau and to Congress by the United States Department of Agriculture, are expected to furnish accurate and comprehensive figures on this important phase of farming which have heretofore been lacking. The facts and figures gathered in the census on this subject will be tabulated, so as to show what each county as well as what each State produced in the way of silage during the year 1919.

The Census Bureau also announces the inclusion in the farm schedule of questions to show how many farmers own tractors and automobiles and how many have heating and lighting plants and telephones in their homes. These questions are designed primarily to make known the better living conditions and modern improvements on farms in all sections of the country. The Census Bureau, in including these questions for the 1920 census, was guided by suggestions from leading farm economists as well as by communications from farmers' organizations. The Department of Agriculture is also interested in these questions and gave its indorsement to the plan.

Copies of Schedules for Farmers

To secure cooperation on the part of the farmers and interest them in the census, the Bureau of the Census has distributed more than a million copies of the agricultural schedule through the

medium of several farm publications which have a wide circulation. The farmers who received these copies will thus have an opportunity to study the questions in advance and be ready to give prompt and accurate information to the census enumerator when he calls during the month of January. Any farmer who desires a copy of the agriculture schedule in advance may secure one by writing to the Bureau of the Census, Washington. D. C. An extra supply of the schedules has been printed for this purpose.

That the individual farmer will realize the advantage of keeping a more accurate tab on what his farm is yielding is one result of the census hoped for by the Department of Agriculture. The schedule of questions which will be used in the approaching census will help the farmer in getting started in this work inasmuch as it sets forth the subjects in which the Government is interested and thus provides a model which any farmer can easily adapt to his own needs.

When Reports Will Be Ready

The published results of the 1920 census will be issued by the Census Bureau as rapidly as possible. No precise time can be set in advance as to when the first reports will appear, but it is thought that the preliminary bulletins will be issued within three months after the completion of the enumeration. Later a series of bound volumes appropriate for use as reference books in libraries and schools will be published.

These publications will show for each county, for each State, and for the country as a whole, the number of farms, the total acreage of farm lands, the value of farm property, the numbers of the different kinds of live stock, the acreage and production of all the important crops, and many other items of interest connected with the farming industry.

The bulletins of the Census Bureau will be widely distributed and every effort will be made to make them of the greatest possible value to the farmers who furnish the information they will contain.

SHOOTING DUCKS IN ARKANSAS

The United States Department of Agriculture has issued an order, effective during the period November 14 to December 31, 1919, inclusive, permitting, under certain restrictions, the shooting at night of wild ducks which have become seriously injurious to rice crops in Arkansas, Lonoke, and Prairie counties, Ark.

MUST USE CARE IN BUYING POISON FOR BOLL WEEVIL

Success Depends Largely on Caution in Purchasing Materials

Essentials That Calcium Arsenate Must Contain Listed for Cotton Farmers Attempting to Control Insects—Testing of Samples

When a farmer goes to buy calcium arsenate for boll-weevil poisoning he should look carefully at the label. It should be printed on the label that the material is satisfactory for cotton dusting and that the manufacturer specifies straight use of the material without the addition of lime or any other carrier. This is the urgent advice of the boll-weevil specialists of the United States Department of Agriculture. If it is neglected, they say, the farmer may get material that either will not control the weevil or that will kill his cotton.

Danger in Careless Buying

Poisoning, they continue, will control the weevil, but the whole scheme is seriously imperiled by careless buying of poison. Much of the supply offered last year was worthless or worse than worthless. Many concerns are beginning the manufacture of calcium arsenate, and there is danger that there will be even a larger percentage of unsatisfactory material than last year unless care is exercised in purchasing. As many farmers are already making their purchases, or will shortly do so, now is the time to exercise such care.

The farmer should not buy calcium arsenate merely because it is labeled or sold as such, the specialists say, but should buy calcium arsenate by specifications. It should contain not more than three-fourths of 1 per cent of water-soluble arsenic pentoxide, on account of danger of burning plants. It should contain not less than 40 per cent total arsenic. If it contains much less it will not control the weevil. Its density should be between 80 and 100 cubic inches to the pound. Otherwise it will not make a satisfactory dust cloud and the plants can not be treated successfully with it.

Examination of Samples

In order to be certain that the material is suitable for cotton dusting the farmer should, as shortly after making purchases as possible, send samples to the Delta Laboratory of the Bureau of Entomology at Tallulah, La., for examination. In purchases of any size, samples should be taken from at least three packages. A safe rule is to take a sample for every 10 packages. Each sample should weigh half a pound. Full information as to the source and history of the material should accompany the samples.

Success in boll-weevil poisoning, the specialists point out, depends on observance of these precautions. The farmer who is not willing to exercise that measure of care would be wise not to attempt poisoning at all.

HOG RAISING A BUSINESS; DANGERS IN SPECULATING

Recent heavy slumps in the hog market, as well as the high prices of corn, have caused hog raisers in various parts of the country to reduce the number of sows in their herds, according to reports received by the United States Department of Agriculture. But hog raising on the farm should be made a stable, regular business, Department specialists believe. The man beginning to raise hogs should resolve to follow it year in and year out, regardless of the price he may obtain for his hogs or the cost of the feed which he converts into pork. Like every other farming activity, pork production has its ups and downs, but, according to long-time averages, the farmer who sticks realizes a fair and dependable profit, the specialists declare.

One source of failure is that too many follow it as a speculation rather than as a business. They plunge on hogs just as they would gamble on grain futures or on the stock market. Operations of this character are never beneficial for any business. Because of the recent decline in the hog market it does not necessarily follow that the selling price of the pigs that will be raised from the sows bred this fall will not be satisfactory. The pigs of this fall will not be ready for a year, and untold changes may come about.

Every farmer who is conservative, careful, and painstaking in his hog-raising operations is able after a few years of experimentation to determine approximately the maximum and minimum number of sows that he can maintain on his farm at the greatest net profit. When he has accurately ascertained this number he should breed that many sows every year, other conditions being equal. In adhering to this plan the farmer is, in no sense, a speculator, but is in reality a business man practicing common-sense business management. Hog raising throughout the localities where pork is made as a regular and dependable cash crop has proved one of the most reliable farm activities in which the farmer engages, and despite market fluctuations and the spasmodic irregularities in prices the prospects are that pork production will be as profitable in the future as it has been in the past.

Western States Make Great Showing In Record-Breaking Milk Contest

At the largest national milk and cream contest ever held, the Western States stepped to the front as producers of high-class milk and cream by carrying off the honors in nearly every class. At this contest, which was held in connection with the National Dairy Show in Chicago, all records for quality of samples and number of entries were broken, according to experts from the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture. Entries numbering 210 were sent in from 22 States.

The samples of milk and cream were divided into the following classess: Market milk, raw; market cream, raw; certified milk; pasteurized milk; pasteurized cream; college and experiment station market milk. There were classes also for city health departments and for milk distributors. In all classes the samples of milk and cream were scored on a scale of 100 per cent for perfect, and banners were awarded to the health department and the distributor whose milk producers made the best scores. Gold and silver medals were awarded to individual contestants, and, with the exception of the college and experiment station class, there was also a bronze medal for the best competitor from each State, provided his score was not less than 95. A diploma was given to every competitor who failed to win a medal, but who had a score of 95 or over.

Western States Spring Surprise

It was surprising to note that the first prizes in the first six classes were all won by States west of the Mississippi River, and the Pacific coast captured all except the class for college and experiment station market milk. California led all States, with a total of four first prizes and one second prize. In the class for raw market milk, which attracted a total of 112 entries, the gold medal was won by Elliott-Brant Rancho, Owensmouth, Calif., with a score of 99.7 and a bacteria count of 550. The silver medal in this event went to Walter Williams, Los Angeles, Calif., with a score of 99.7, but with a slightly higher bacteria count. Elliott-Brant Rancho also won the gold medal in the market-cream class.

University Dairy, Berkeley, Calif., took the gold medal in the certified-milk class. In the pasteurized-milk and pasteurized-cream classes both the gold medals were taken by the Portland-Damascus Milk Co., Portland, Oreg., while in the college and experiment station market-milk class the South Dakota college was the winner. In the class for city health departments the banner was won by Los Angeles, Calif., but among the milk distributors the eastern section came back when the banner was awarded to Supple-Wills-Jones Co., of Philadelphia, Pa.

All the entries were judged by George B. Taylor, Dairy Division, United States Department of Agriculture; Prof. H. A. Harding, University of Illinois; and C. F. Hoyt, of the western office of the Dairy Division at Salt Lake City. Milk and cream contests, both national and local, are doing much to improve the quality of milk and cream by fostering a spirit of friendly rivalry among producers and dealers.

CHECK FOR APPLE LEAFHOPPERS

The apple leafhopper, a destructive insect that occurs in nearly every State of the Union, may be materially checked by a single spraying with 40 per cent nicotine sulphate in the proportion of 1 to 1,500, combined with soap, according to the Bureau of Entomology of the United States Department of Agriculture. The solution should be applied against the first-brood nymphs. The same treatment made three or four weeks earlier is effective against the rose leafhopper, though this species is seldom injurious enough to justify a special application.

The apple leafhopper causes serious injury to apple nursery stock by extracting the plant juices from the terminal leaves. As a consequence the leaves gradually become undersized and fail to function normally, thereby retarding the growth of the trees. The rose leafhopper feeds on the lower leaves and produces white or yellow spots on them.

Spain Sends Most Olive Oil; Quality Equals Italian Kind

Olive oil, which was scarce during the war, and which can not yet be obtained from Italy except in small amounts, is now being imported from Spain and France in sufficient volume to meet the usual demands of this country. Its quality is equal to that of Italian oil. This is stated by officials of the Bureau of Chemistry, United States Department of Agriculture, who supervise the inspection of all foods and drugs imported from foreign countries.

The largest quantity of the oil now comes from Spain. In 1914 the United States imported only 362,483 gallons of olive oil from Spain, according to statistics furnished by the Bureau of Foreign and Domestic Commerce, but during the first eight months of the year 1919 there were imported into this country from Spain 6,608,468 gallons, or nearly twenty times as much as five years ago. From Italy in 1914 there were imported 4,319,567 gallons, but during the first eight months of the current year only 23,851 gallons came from Italy, this being less than 1 per cent of the importation from Italy five years ago.

More olive oil is now coming from France than from Italy, but the quantity coming from France is still much below the prewar volume. In 1914 this country imported 949,858 gallons from France; during the first eight months of this year 94,288 gallons came from France, which is just about one-tenth of the prewar volume.

The total amount of olive oil imported into the United States from all countries for the year 1914 was 6,217,560 gallons, while the total importations from all countries for the first eight months of the year 1919 were 6,742,710 gallons, or approximately half a million gallons more than was importe din 1914.

CHANGES IN CLUB WORK

O. H. Benson, for 10 years connected with the United States Department of Agriculture, and during the greater part of that time in charge of the boys' and girls' club work of the Office of Extension Work for the Northern and Western States, has resigned. George E. Farrell, formerly assistant in boys' and girls' club work in the Northern and Western States, and more recently secretary of the Hampden County Improvement League of Massachusetts, has been appointed to succeed Mr. Benson and will resume his duties with the department on December 1.

Stock raisers of Kossuth County, Iowa, point with pride to the fact that 20 per cent of the total number of herds in the State of cattle accredited as free from T B are found in their county. There are 53 Kossuth tested herds and 40 others are on the waiting list to be tested in the near future.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

OVERFEEDING MAY CAUSE AZOTURIA AMONG HORSES

This is the season of the year when the disease known as azoturia, and also popularly designated as "lumbago" and "black water" is apt to appear among horses, particularly those that are in good condition. The animals usually attacked are those that are well fed and, though accustomed to regular work, have remained idle for one or more days without corresponding reduction in rations. Among the first symptoms are a staggering of the hind parts and profuse perspiration. Usually the attack comes on suddenly soon after leaving the stable, though it may occur several hours after leaving the stable. After it has fallen, the stricken animal may attempt to rise but will be unable to stand on its feet for any length of time.

Horses attacked with azoturia should be immediately freed from the harness and bedded to protect them from injury. Especial care should be taken to prevent bruising the head. A blanket should be thrown over the animal and then it should be removed on a wagon, sled, or sledge to a stable, preferably a well-bedded box stall. Until the animal is able to stand it will be necessary to pass a catheter and draw the urine at least twice daily. Both treatment and nursing should be carried out under the direction of a skilled veterinarian.

While this disease has been attributed to various causes, veterinarians in the United States Department of Agriculture and other authorities incline to the belief that autointoxication is probably the cause. This theory seems to be confirmed by the fact that the development of the disease is favored by rich feeding and a period of idleness. In any event, it is of special value to know that the disease may be prevented with the greatest certainty by reducing the ration of grain when horses are not working and by exercising them daily.

LAND PURCHASES APPROVED FOR U. S. NATIONAL FORESTS

Purchases totaling 66,381 acres in the White Mountains, the southern Appalachians, and Arkansas at an average price of $3.91 per acre have just been approved by the National Forest Reservation Commission, a body created by Congress to purchase land on the headwaters of navigable streams for the protection of their watersheds. The action of the commission means that usefulness of the new national forests in the East, the inception of which dates from the beginning of purchase work in 1911, will be greatly increased.

The commission also decided to request, for the fiscal year beginning 1921, an appropriation of $10,000,000 in five annual installments of $2,000,000 for extending purchases. The program contemplated is contingent on the assurance of definite sums being available for making purchases through a period of years. Without such assurance the policy will be to restrict purchases to tracts contiguous to lands already approved for purchase. This policy is dictated in part by considerations relating to the administration of the lands and fire-protection measures. The lands just approved for purchase bring the total area acquired or being acquired under the act of March 1, 1911, to 1,835,308 acres.

NEW PUBLICATIONS AIM TO HELP TEACHER TEACH

"If the teaching of agriculture is to have any permanent effect upon community life and practice, it must have a vital connection with the daily experiences of the pupils and must utilize the latest and best information available. The teacher must so organize the available subject matter that it will touch closely the pupil's life and experiences."

That is the opinion of the United States Department of Agriculture, expressed in the prefatory paragraphs of Department Circular 69, "How Teachers May Use Department Publications on the Control of Diseases and Insect Enemies of the Home Garden."

"In order to give the teacher some material assistance along these lines," continues the introduction, "leaflets indicating how teachers may make use of information contained in publications of the United States Department of Agriculture have been prepared and it is hoped that they may help to improve instruction in agriculture and kindred subjects in the schools and directly connect it with community interests. The leaflets are designed especially for teachers in elementary schools, but in many cases will be found suggestive and helpful to teachers in secondary schools and in urban as well as rural schools, depending upon the subject matter and the interests of the community served by the schools."

The circular indicates how the teacher may so closely connect the information given in the department publications with the everyday experiences of the pupils as to place the subject among the things of common interest to the average child. Copies may be had upon application to the Division of Publications, United States Department of Agriculture.

BORDER IRRIGATION PAYS BEST

Irrigation farmers of northern Oregon and southern Washington in the Columbia River Valley sandy lands, where the water soaks rapidly into the soil, have been accustomed for years to practicing the contour system of irrigation, that is, the flooding of the watered areas from contour ditches. This method was popularly supposed to be the most efficient one applicable to the rough, sandy lands of the region mentioned.

Extensive experiments by the State and Federal Departments of Agriculture have demonstrated that the so-called border method of irrigation is superior to the contour system, inasmuch as it distributes the water more evenly, economically, and rapidly than has been possible under the contour method. Although the laying out of the rough, sandy lands in the Columbia River Valley involves some engineering skill, it has paid well from an agricultural standpoint.

PUREBRED BULLS BOOST PROFITS

A comparison based on the survey records of 673 Illinois farms conveys its own lesson as to the value of purebred bulls. A total of 124 of these farms use purebred bulls. Their average yearly profit is $1,102 per farm; 466 farms use grade bulls and have a yearly profit of $734 per farm; while 83 farms use scrub bulls and are operated at a yearly loss of $234 per farm.

Use Molasses in Pork-Curing Recipes; Directions Given by Department Men

In the present sugar shortage it is advisable, even if sugar can be procured, to use molasses or some kind of sirup in place of it in the formulas used for curing pork, according to United States Department of Agriculture specialists.

If sugar is used for dry curing, it is better, anyway, to make it into a sirup before using, for salt mixed with sugar will not stick on meat as well as salt mixed with sirup. The use of molasses or commercial sirup does away with this extra work.

The following formulas have been found to give good results:

Sweet Pickle or Brine Cure

Select pieces 12 pounds or less.
Make a pickle consisting of:
- 3½ pounds salt.
- 1¾ pounds sirup or molasses, or if preferred, 1¼ pounds sugar, preferably brown.
- 1 ounce saltpeter.
- 2¼ gallons water.

(These amounts are based on 50 pounds of meat. If more or less meat is used, the amounts of the ingredients should be correspondingly increased or decreased, as the case may be. Under no circumstances should the individual piece of meat weigh over 12 pounds.)

Place the meat in a stone jar or hardwood barrel, and weight it down with a board and stone. Do not use iron, for it will rust.

Then pour in just pickle enough to cover the meat.

Leave the meat in the pickle 3 days to the pound of meat, so that a 10-pound ham would be left in the pickle for 30 days, and a 6-pound bacon, 18 days.

After the meat has been in cure a week, take it all out of the jar or barrel, remove the pickle, replace the meat, weight it down, and again pour the same pickle over the meat. Repeat every week.

Dry Cure

(Applicable to either light or heavy meat.)
Mix thoroughly—
- 3½ pounds salt.
- 1 ounce saltpeter.
- 1 ounce red pepper.
- 1 ounce black pepper.

Then add 1½ pounds warm sirup or molasses, and mix with the above until it assumes the appearance of sawdust.

Apply a liberal coating of the above mixture to all surfaces of the meat, excepting the skin.

The meat should then be placed on a table, clean floor, or in a hardwood barrel, after first sprinkling the surface of the table, floor, or bottom of the barrel with salt.

Leave all the meat in cure undisturbed until the heaviest piece has been in for a period of 1½ days to the pound. Thus if the heaviest ham weighs 20 pounds, leave all the meat in cure 30 days.

Meats cured in sweet pickle or brine should be consumed within 90 days from date of cure. Meats cured with dry cure may be consumed immediately upon removal from cure, but the flavor improves with age, and the meat is better 60 days after curing. Dry-cured hams have been known to keep three or four years.

Beans, though higher in price than they were several years ago, are still among the cheaper foods that can be bought to-day. They are one of the cheapest sources of protein and may be used to help supply this valuable food constituent in the diet, according to United States Department of Agriculture specialists.

Successful storage of potatoes is dependent on a number of factors; as, for example, the quality of the tubers stored, the temperature at which they are held, the moisture content of the air, the size of the storage pile, and the exclusion of light. The proper storage temperature for potatoes ranges from about 34° to about 40°.

TWO GENERAL METHODS OF HANDLING PIGS IN WINTER

When the fall pig crop has been weaned the future management of the hogs becomes of paramount interest to the grower. Specialists of the United States Deparement of Agriculture report two general methods for the profitable handling of fall pigs during the winter. One system is to push the hogs as rapidly as possible in order to sell them on the market before the hot weather of the following summer. This really is the "hothouse" method of producing pork, as the animals are given extra care and feed in rushing them toward rapid maturity. This method involves particularly good housing for the hogs, as protection from the severe weather of winter in the colder locations is essential. One of the most important factors is clean bedding. Above all things fall pigs should never be allowed to sleep in damp bedding, as it is a prolific source of colds and pneumonia.

Another method of carrying fall pigs through the winter is to maintain the animals on a good growing ration which is relatively rich in protein-carrying materials. These are prerequisite for the making of a large, bony framework. The idea is to prime the hogs into good condition so that they may be turned out on grass the next spring with a well-developed framework on which they can store a surplus of fat. These animals can then be carried through the summer on good pasture with the addition of a little grain, thereby making some gain in weight and considerable gain in size, and be in splendid condition the following fall to fatten rapidly on the new corn crop. This system involves maintaining the hogs on the farm in some instances until the animals are 15 to 16 months of age, but often the porkers can be fed more cheaply where this method is practiced than where the hogs are pushed rapidly to market maturity.

Many herdsmen neglect to provide a sufficient amount of drinking water for the hogs during the winter months. Pigs should have free access to pure water at all times.

ILLINOIAN FOR BETTER SIRES

In writing his indorsement of the "Better Sires—Better Stock" campaign, the proprietor of a Holstein dairy near Amboy, Ill., states that because of his adherence to the breeding principles advocated in this crusade, the butterfat average for his dairy is higher than that of any other herd in the cow-testing association of which he is a member. His animals also have been very successful in the show ring.

Texas cowmen are not overlooking an opportunity to secure cattle, no matter how remotely located, to utilize successfully the abundant winter ranges and forage crops. Some of these cattle have been shipped and reshipped several times and at last are located on land near which they originated. It is estimated by some of the best-informed cattlemen of the State that at the end of the year Texas will have as many cattle as before the terrible drought which ended this year.

ECONOMY IN BEEF PRODUCTION COMES FROM BETTER BLOOD

(*Continued from page 1.*)

The straight beef system is primarily adapted to regions where pasture is plentiful and cheap, this system being more widely followed in the United States than either of the other two. The baby-beef system is a highly specialized line and is peculiarly adapted to regions where a plentiful supply of fattening feeds is grown, together with sufficient pasture for the summer maintenance of the breeding herd and nursing calves. At the present time the Corn Belt is the region best adapted to this system, although it is practiced in a limited way in other sections. The dual-purpose system is followed extensively in many semi-dairy districts. According to this plan all the cows are milked and the calves are raised on skim milk and supplemental feeds. Often the dual-purpose idea resolves itself into trying to make dairy animals out of a strictly beef breed. Dual-purpose calves, as a rule, do not possess the beef-type characteristics of strictly beef-bred calves, but when they are "grown out" and fattened properly they make very satisfactory beef.

Cut Feed Costs to Limit

When feeds are high in price the use of cheap rations is especially desirable for the maintenance of the breeding herd. Cows raised for the production of calves only can be fed very cheaply on silage and dry roughages, combined with a small quantity of protein-rich concentrates, although by the substitution of leguminous hays, the costly concentrate may be omitted. Dual-purpose cows kept for dairy products as well as calves should receive feeds nearly identical with those provided for dairy cows. As far as possible home-grown feeds should be utilized, although it is almost essential that considerable amounts of purchased concentrates be provided. Cows that are milked should receive 1 pound of concentrate for every 3 to 4 pounds of milk produced, depending upon the fat content of the milk.

In the South, where velvet beans may be grown, this crop when planted with corn affords excellent pasturage for breeding cows after the corn has been gathered. Throughout the drought-exposed areas of the West it is unusual to save emergency supplies of feed, and as a result during the drought many cattle owners are obliged to utilize the native range plants such as soapweed, sotol, bear grass, and prickly pear. These plants, ground up, serve to sustain the life of cattle where each mature animal receives from 20 to 25 pounds a day. When from 1 to 2 pounds of cottonseed cake is supplied as a supplement to the chopped feed, a fairly good ration is provided.

In the semiarid region of the Southwest, sorghum plants provide excellent silage, while in the range sections of the Middle West it is essential to set aside considerable hay as emergency feed. During severe winters animals that are especially thin and weak should be separated from the rest of the herd and sheltered and fed. Cheap shelter not only saves feed but may save many cattle that would die if left exposed to wintry storms.

How to Feed Beef

The farmers' bulletin mentioned discusses in detail the proper methods of feeding cattle in the various beef-producing sections in the United States, and also presents a wide variety of balanced rations suitable for use in each of these beefsteak-producing localities. It describes at some length the popular methods of handling yearling stockers, while it also emphasizes the value as scavengers of hogs, yard mates of fattening cattle. The number of hogs to use depends upon the kind of cattle and the character and quality of the grain ration which is fed. Ordinarily one pig weighing 70 to 80 pounds to each three steers is required. When supplemental feed is provided the porkers, a few more may just as well be added, the chief consideration being to utilize all waste feed and to convert it into pork.

It isn't all smooth sailing for the farmer who elects beef production as his major activity. He, of necessity, has to battle against unfavorable weather conditions, both for the production of crops with which to feed the animals and for the development of the beeves that are desired to consume the surplus feed and convert it into concentrated meat products. Furthermore, throughout certain sections of the Southern States, the Texas fever tick still threaten prosperity for the cattle feeders. The periodic use of arsenical dips which destroy the ticks is the only successful combative measure. Cattle lice also prey upon run-down, emaciated cattle and accomplish heavy economic losses. The lice can be controlled by dipping the cattle in coal-tar solutions in the fall before cold weather begins. The ox warble or grub, as it is sometimes called, is the bane of the cattle hide industry, as these boring grubs catacomb the carcasses with their tunnels, thereby puncturing the hide in many places where the skin is most valuable. About the only way that grubs can be controlled is to squeeze or cut them from the carcass and destroy them. Cattle mange, ringworm, and blackleg all collect annual tolls from the beef producers.

PREVENT POTATO LOSSES; SHIP IN FROST-PROOF CARS

In loading potatoes for shipment in cold weather, special care must be taken to prevent freezing if the shipper is not to suffer losses that may wipe out profits for an entire season's work. It is not enough that insulated walls and floors and means for heating be provided without regard to the proper methods of installation. Approximately 75 per cent of all cars prepared to protect potato shipments in cold weather are lined or loaded incorrectly, according to an investigation made last winter by the Bureau of Markets of the United States Department of Agriculture.

False Floor and Walls Advised

To make a box car safe for shipping potatoes in weather that is below freezing, the Bureau of Markets recommends that the floor, walls, and ceiling of the car be covered with building paper held in place with laths. After papering, a false floor should be laid on supports running lengthwise and allowing a free air channel, 4 to 6 inches deep, below the false floor and extending from the center of the car to either end and connecting with vertical air passages formed by false walls built 4 to 6 inches from the car ends. False walls, also, should be built a few inches from the sides of the car. The false floor should not cover the area between the doors. Here a stove is installed, if the shipment is likely to pass through severe weather. A false door should be built on one side for a stovepipe and bulkheads put across the car at either side of the doors to form a "well" for the stove. These false walls, as well as the center bulkheads, rise well toward the ceiling, and with the false floor form two large bins around which the air continually circulates.

Bins Should Be Lined

The bins should be lined with paper—the same as the car walls, ceiling, and floor. The longitudinally arranged floor supports permit the cool air to settle below the false floor and to move toward the base of the stove, whence it rises as it is heated and moves out toward the ends of the car, between the top of the load and the ceiling.

In loading care should be taken not to allow sacks to hang over the upper edge of the end partitions, as that will cut off the circulation. The bags next to the outside walls and near the floor should be set a few inches from the outer walls, thereby lessening the chance of their being frost bitten if the car cools.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Figures Show Decline of TB.

Analysis of the reports regarding tuberculosis in cattle and swine, issued during the last three years by the United States Department of Agriculture, indicate a decrease in the percentage of animals found to be infected with this disease. The figures based on post-mortem results at federally inspected meat-packing establishments are encouraging to State and Federal authorities and others engaged in the eradication of tuberculosis.

A summary of the federally inspected slaughter of cattle at eight important market centers—Chicago, Kansas City, Omaha, South St. Joseph, St. Paul, Sioux City, East St. Louis, and Milwaukee—shows that the percentage of animals condemned for tuberculosis for the year ended June 30, 1917, was 0.51 per cent (51 hundredths of 1 per cent) of the whole number slaughtered. For 1918, condemnations for the same cause had deceased to 0.38 per cent; and in 1919 they had dropped to 0.32 per cent. The total number of cattle slaughtered in 1917 at the eight points mentioned was 5,966,824, and in 1919 this had increased to 6,995,735.

The reports regarding swine at the same eight markets show that the percentage condemned for tuberculosis in 1917 was 0.244 per cent; in 1918, 0.199 per cent; and in 1919, 0.17 per cent.

It is noteworthy, the Meat Inspection Division points out, that the percentage of tuberculosis in swine declined along with the decrease of the same disease among cattle. The figures support the belief that swine are infected with the tuberculosis principally from cattle, infection being spread in most cases either by feeding unpasteurized skim milk, by allowing hogs to eat tuberculous carcasses or offal, or permitting the hogs to follow diseased cattle in feed lots and pastures. Live-stock owners, the Department of Agriculture declares, can hasten the stamping out of tuberculosis by careful attention to sanitation, by having their herds tested with tuberculin, removing any reactors found, and thereafter requiring all cattle introduced on the farm to have passed a successful tuberculin test.

To Issue "Market Reporter."

Beginning about January 1, 1920, "The Market Reporter," a periodical of general interest devoted to marketing information concerning important agricultural products, will be published weekly by the Bureau of Markets. It will be sent free to those interested who make request for it to the Bureau of Markets, United States Department of Agriculture, Washington, D. C., and who give the following information: (*a*) Name and full address, (*b*) business or occupation, (*c*) kind or kinds of farm products in which interested, and (*d*) the names of periodicals or reports (mimeographed or printed) that are being received or have been received regularly from the Bureau of Markets or any other branch of the United States Department of Agriculture.

Useful to Scrub-Bull Owners.

To meet the demand of live-stock owners for information on proper methods of skinning and preparing hides for market, the Department of Agriculture is preparing for distribution the second edition of Farmers' Bulletin 1055, "Country Hides and Skins." The suggestion has reached the department that the publication mentioned should be especially useful to owners of scrub bulls, particularly those who are discharding unfit sires and are demonstrating their interest in live-stock improvement by joining the Federal-State campaign for better sires.

Rare Sugar Found in Honey.

Although known to occur in various forms, even perhaps as one of the constituents of the manna of Scripture, Melezitose is one of the rarest sugars. Minute quantities of it have been available to scientists for many years, but the supply has never been sufficient to permit of extensive experimentation. Now, by the aid of some Pennsylvania bees, many of which lost their lives, the United States Department of Agriculture has several kilograms of this rare substance, extrated and purified in the Bureau of Chemistry.

The bees in certain sections of Pennsylvania were storing up honey that crystallized, with the result that in the following winter seasons the bees were not able to digest it, and starved. The crystallized substance in the honey was found to be melezitose, which derives its name from *melez*, the French name for the larch tree, on which it was originally discovered in the form of honeydew. It also occurs in a sugary incrustation, or manna, on a leguminous tree in Persia and adjoining countries. Recently it has been found by the Bureau of Chemistry in a similar product on the Douglas fir in British Columbia. And now it has turned up in Pennsylvania, stored away in the honeycomb, in numerous hives. In this instance the following origin of the substance has been worked out:

The scrub pine, and rarely other species of pine, are subject to attack by a plant louse and by a scale insect. In the course of their life activities these insects produce a honeydew which is rich in melezitose. In dry summers, after the white clover flowers have ceased to yield honey, the bees turn to this honeydew, and collect it; but it crystallizes as fast as they store it away. This occurred in 1917 and 1918, and considerable losses were suffered by beekeepers. In 1919 the weather was so moist during July that no melezitose was gathered by the bees at all. But it probably will be collected in future whenever the summer is dry; and the honey of central Pennsylvania may afford a permanent source of sugar previously so rare as to be only imperfectly known. The Bureau of Chemistry extracted considerable quantities from the honey of 1917 and 1918, and is making extensive experiments with it. Rare as it has always been, there is a definite demand for melezitose for use in scientific laboratories. It can be distinguished from other sugars by certain peculiarities of crystallization observable with the polarizing microscope.

Wool Imports Doubled.

Imports of wool during the five-year prewar period, 1910–1914, averaged 207,583,742 pounds annually, or something less than half the present imports, according to the Bureau of Markets of the United States Department of Agriculture. As the population of the United States has been increasing so have the imports of wool. For the fiscal year ending June 30, 1918, this country imported 379,129,934 pounds. During 1919, the total importation amounted to 424,414,644 pounds, or more than double the prewar average. From January to August, inclusive, of the present year (eight months) more wool was imported than during any of the prewar years mentioned, and if the present average month-

ly imports of 36,238,982 pounds is maintained throughout the remaining months of this year, the United States will import more than 430,000,000 pounds during the present calendar year.

An Eight-in-One Breeders' Club.

One of the most unique and successful community breeders' associations of the country is located in Loudoun County, Va. It is unusual because instead of fostering the breeding and improvement of a single class of live stock, it sponsors the improvement of eight breeds and classes of live stock. The excellence of such a plan is that duplication in work and extra expense are eliminated, while the society is really standardizing the production of purebred live stock within Loudoun County.

Guernsey and Shorthorn cattle, Percheron horses, Berkshire and Duroc Jersey hogs, Shropshire sheep, and Rhode Island Red and Barred Plymouth Rock poultry have been selected in public meeting by the farmers and stockmen of that section as the dominant breeds of the county.

The Loudoun County Breeders Association, organized in 1916 by joint efforts of the county agent, a progressive banker, and a few forward-looking farmers, has grown from an original strength of 60 to over 250 active members. Through its manager it purchases and sells live stock for its members and has been of marked influence in improving the character and quality of the county live stock.

Specialists of the Department of Agriculture believe that there is a fertile field for the formation of similar live-stock breeding clubs throughout the United States. In some of the leading stock-producing areas four or five, or even more, individual breeders' clubs now exist, whereas one general organization saves an overhead cost and permits of the hiring of a paid business manager as in Loudoun County.

A Bank and Better Sires.

The better-sires campaign is attracting active attention on the Pacific coast. Recently the U. S. Department of Agriculture received a letter from a bank at Bend, Oreg., containing the following statements:

"We are anxious to assist this campaign in every way possible and have been conducting a live-stock improvement campaign for some time. This bank has brought in 15 registered beef bulls since March 1, and we are now arranging for a carload of stockmen to go to the Pacific International at Portland. We have offered to finance any stockman in the county who wishes to purchase purebred sires while at the stock show. We wish to link up with your organization in this campaign in every way possible."

The Department of Agriculture is ready to enroll in the campaign any live stock owner who fills out the prescribed blank and has it properly certified as described in literature now being distributed. The listing of dominant breeds by counties, too, is attracting attention and counties interested in that phase of the campaign may be enrolled at any time.

South Tests Potato Seed.

The United States Department of Agriculture has been testing high grade northern grown Triumph seed potatoes in the South to determine the relative merits of such seed stock over that purchased in the open market in the localities in which the tests were made. These studies were made in two localities each in Louisiana, Oklahoma, and Arkansas, and at three points in Texas. In Oklahoma and Arkansas the local seed used included home grown second crop seed.

The northern grown seed used in these experiments consisted of three lots each from Minnesota and Wisconsin, six lots from northwestern Nebraska—three lots of which had been grown under dry land conditions and the remaining three under irrigation—and one lot each from North Dakota, Michigan, and Maine. The object in securing seed from these different localities was to determine whether seed stock from one locality was superior to that from another. A further comparison was also made between dry land and irrigated seed stock.

The results obtained from one season's trial indicate a very decided variation in the productive capacity of the several lots of northern grown seed stock. The yields from the best strains were in practically every instance decidedly superior to locally purchased northern seed, and equal to or superior to locally grown second crop seed stock. It is proposed to give greater prominence in the 1920 tests to the comparison between northern grown seed and locally grown second crop seed one year removed from the North, in order to determine the feasibility of placing greater dependence on this source of seed supply, and thereby reduce the quantity to be imported from the North.

The experiments will have to be continued for several seasons to answer the various questions involved.

Cholera Reduced Three-Fourths.

An example of the benefit which may come to a community from the well-directed efforts of State and Federal agencies, coupled with the cooperation of farmers, for the control of hog cholera is shown in a recent report of a veterinary inspector of the Bureau of Animal Industry, U. S. Department of Agriculture.

Hog cholera control work was inaugurated in six counties in the northeastern section of North Carolina August 1, 1916. An intensive campaign was carried on for a period of 14 months. It included investigation of reported outbreaks, demonstrations in the use of serum and virus, and the disinfection of premises. As the services of practicing veterinarians were not available, a number of laymen were trained in the administration of the serum treatment for cholera. After that period of intensive activities the work was withdrawn to another section of the State, only general supervision being given to the original area.

During October a survey was made of the counties comprising the district in question, and a questionnaire was submitted to as many of the farmers as could be reached. Answers received and tabulated indicate that there has been a reduction in losses from cholera of over 72 per cent, and an increase of over 160 per cent in swine production, due to the protection offered by the immunization of the animals. There has also been a marked improvement in the type of this class of animals, due to the knowledge that it is possible to raise more and better hogs without danger of having them destroyed by cholera.

Tennessee for Better Sires.

"Better sires—better stock.

"A nation-wide crusade to improve the quality of cattle, horses, mules, swine, sheep, goats, and poultry in the United States.

"Every Tennessean who believes in better live stock should join this movement, begun by the U. S. Department of Agriculture."

That is the first thing seen by the readers of the current issue of the Monthly Bulletin of the Tennessee Department of Agriculture.

"It means the passing of the scrub," the Bulletin continues.

"It means greater success in live-stock production and consequently greater prosperity for the people.

"Good-bred stock will outsell the scrub every time.

"If you want better stock consult the county agent in your own county or else write to the Division of Extension, Knoxville, Tenn.

"Now is the time to put Tennessee on the live-stock map.

"If you believe in better live stock and poultry join this movement. Tennessee has natural advantages for wonderful live-stock development, but the 'better sires' crusade will do much to hurry along this development."

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RECOMMENDATIONS IN REPORT OF SECRETARY OF AGRICULTURE

New Work to Benefit American Farming Is Advocated

Rural Life, Increase of Yields, Aid to Farm Seekers, Tenancy, Personal-Credit Unions, Good Roads, Among Subjects Dealt With

Recommendations in the annual report of the Secretary of Agriculture include the following:

Investigational Work

Continuance and enlargement of investigational work, particularly such as is required to insure fuller control of destructive plant diseases and insect pests.

Rural Life

Increased support by States for rural schools, with courses of study related to the problems of rural life, construction of good roads, and adequate provision for the requisite sanitary and medical services, including hospital facilities, in rural communities.

Increasing Yields

Preparation by American agriculture for the period of competition, which is to be expected with the return to normal world conditions, by increasing the productivity of areas already under cultivation and by utilizing the services of the most experienced and judicious agricultural leaders in determining where, when, and how to bring into cultivation public and private unused land. Full studies of distinctive regions with a view to assemble all existing data on productivity, cost of making the land available, present tenure and prices, type of agriculture best adapted to conditions, possible returns, etc.

Aid to Farm Seekers

Systematic aid by governmental agencies, through their agricultural machinery, to persons seeking farms, by furnishing them reliable information, by giving them special assistance and guidance, and, where conditions are favorable, by assisting in the development of well-considered settlement plans.

Tenancy

Definite efforts to change the conditions of leasing so as to improve the methods of agriculture, increase the period of occupancy, and insure a fair division of returns, the States to provide by law for a system of compensation by owners to tenants for unexhausted improvements and for setting up the necessary administrative machinery. Serious thought to the problem of limiting absentee landlordism. Measures to retard the increase of tenancy, and to make the road to farm ownership as smooth as possible, partly by providing more liberal credit facilities.

Forestry

Requirement that owners of forest lands shall provide adequate protection against fire, the public, through both the

(*Continued on page 6.*)

THREE articles based on the 1919 report of the Secretary of Agriculture are published in this issue of the Weekly News Letter. Others will be published in succeeding numbers.

FARMERS' EFFORTS IN 1919

Would Have Planted Record Acreage if Fighting Had Continued

The public pretty well knows by this time what the farmers of the United States did toward winning the war by their crop and live-stock production activities in 1917 and 1918. The results of their 1919 operations are summarized in the annual report of David F. Houston, Secretary of Agriculture. They would have planted, he says, the largest acreage in the Nation's history if fighting had continued and the season had been favorable.

"The farmers of the Nation in 1919 planted an acreage in leading cereals greater by 33,000,000 than the prewar annual average (1910–1914), which, it

(*Continued on page 6.*)

AMERICAN FARMING ADVANCING SAYS SECRETARY IN REPORT

Steady Increase in Per Acre Yield Shown by United States Agriculture

"This Country Has a Long Distance to Go Before it Comes in Sight of Its Limit of Farm Production"

"American agriculture, instead of deteriorating, as some people have asserted, is steadily advancing," says David F. Houston, Secretary of Agriculture, in his annual report. He shows, by comparing figures covering a long period of years, that the average yield of all crops for the decade ending in 1918 is about 16 per cent greater than the average for the decade ending in 1890. He also points out that while the results of agricultural operations during the war furnish guaranty of the ability of the present farm population of the country, with the area now in farms and in the existing state of agricultural science and practice, to meet the Nation's necessities for the near future if the requisite incentives are furnished, the steady increase in acre yields gives ground for further optimism.

Average Acre Yield to Increase

"For many years to come the average yield per acre in the United States may be expected to increase although the total output per man may diminish.

"This country has a long distance to go before it comes in sight of its limit of farm production. It can further increase its output of commodities by continuing to secure increased yields per acre. It has been estimated by experts that only about 15 per cent of the land in cultivation is yielding reasonably full returns. The opportunity is presented, as conditions warrant, to bring the remaining 85 per cent up to the point of fair yield. One of the objectives of all good farmers and of the agricultural agencies assisting them is to promote increased yields along economic lines by the further application of scientific knowledge and the adoption of improved practices. The path of progress is pretty

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well charted and the agricultural forces are moving along it with gratifying speed.

Necessity of Investigational Work

"However, the maintenance of satisfactory increases necessitates the continuance and enlargement of investigational work, particularly such as is required to insure fuller control of destructive plant diseases and insect pests.

"The Nation can further expand its output of commodities by cultivating the tillable land which at present is unused, estimated to be over 60 per cent of the total.

"It appears not to be well known," he states, "that as the result of improved processes and better practices in all sections there has been an upward tendency in the acreage yields. The increased production per acre is due in considerable measure to the practice of better agricultural methods, including more efficient farm machinery, better knowledge and fuller adoption of crop rotations, planting of crops better adapted to prevailing climatic conditions, development and adoption of varieties more resistant to plant diseases and insect pests, more general application of disease and insect-control measures, increased and more intelligent use of fertilizers, and improved efficiency in crop production generally."

The increase in acre yield, the report shows, is not confined to any particular section of the United States, but is general throughout the country. It shows, further, that the same tendency exists in the agriculture of most of the civilized countries of the world.

How American Farmers Lead

Secretary Houston also points out that in comparing American yields per acre with those of European countries "it should be borne in mind that in the United States the energy of each farmer is spread over a larger area and that although the American farmer produces less per acre he produces much more per man. The total production by the average farmer is probably greater in the United States than in any country in the world. Thus in Belgium, with its intensive system of farming, only about 5.3 acres are cultivated for each person engaged in agriculture, whereas in the United States the corresponding figure is 27 acres. Taking both acreage and yield per acre into consideration, the average American farmer produces 2½ times as much as the average Belgian farmer, 2.3 times as much as the English, 3.2 times as much as the French, 2½ times as much as the German, and over 6 times as much as the Italian."

Secretary Houston goes into considerable detail in discussing the progress of agriculture as reflected by increased acre yields. "Crop yields per acre in the United States," he says, "show an upward tendency during the period for which we have reliable comparable statistics. The average rate of increase for the past 25 years has been about one-half of 1 per cent a year. This gain is not readily observed from one year to another, owing to the wide yearly fluctuations in yield. But when averages for a series of years are obtained, the effect of the seasonal variations is largely neutralized and the general trend is clear.

Upward Tendency Since Nineties

"During the decades of the seventies and eighties, when there was a vast expansion of farm area in the West and crops were grown on a more and more extensive scale, the tendency of crop yields per acre was downward. Since the early nineties, however, the movement has been upward.

"In the decade of the eighties—that is, for the 10 years ending with 1890—the average yield per acre of wheat in the United States was 11.84 bushels; for the past 10 years—that is, for the 10 years ending in 1918—it was 14.87 bushels, an increase of 25 per cent.

"For the 10 years ending in 1890 the average yield of corn in the United States was 23.43 bushels; in the 10 years ending in 1918 it was 25.81 bushels, an increase of 10 per cent.

"The oats yield in the 10 years ending in 1890 averaged 25.92 bushels, but in the 10 years ending in 1918 it was 32.17 bushels, a gain of 24 per cent.

"The potato crop averaged 72.97 bushels per acre for the 10 years ending in 1890, and 96.84 for the past 10 years—an increase of nearly one-third.

"By a like comparison, it may be observed that the hay yield rose from 1.193 tons per acre to 1.432 tons, an increase of 20 per cent.

"Cotton, notwithstanding the ravages of the boll weevil, increased from an average of 169.78 pounds in the decade ending in 1890 to 175.73 pounds for the past decade, a gain of 3½ per cent.

"Other field crops have likewise shown greater yields. The average increase per acre of all crops in the 10 years ending in 1918, compared with the 10 years ending in 1890, was about 16 per cent.

"The tendency toward enlarged production per acre is general throughout the United States; it is not due to a shifting of production from one section to another. For example, in the old agricultural State of New York the increases for the two periods mentioned above were as follows: Corn, 25 per cent; wheat, 44 per cent; oats, 21 per cent; barley, 24 per cent; buckwheat, 43 per cent; potatoes, 30 per cent; hay, 10 per cent; average of all (weighted), 18 per cent. The facts for the New England States may appeal to many as even more striking and significant. For the six New England States, the following gains are shown in the 10-year period 1909–1918 over the 10-year average for 1866–1875: Corn, 33 per cent; wheat, 63 per cent; oats, 25 per cent; barley, 27 per cent; rye, 27 per cent; buckwheat, 17 per cent; potatoes, 27 per cent; hay, 42 per cent, and all field crops, 25 per cent. And for the 10 years 1909–1918 over the 10-year average for the period 1881–1890: Corn, 38 per cent; wheat, 50 per cent; oats, 24 per cent; barley, 29 per cent; rye, 44 per cent; buckwheat, 45 per cent; potatoes, 69 per cent; hay, 23 per cent; and all field crops, 26 per cent.

Same Tendency Elsewhere

"Not only in the United States, but in most civilized countries of the world, the yield per acre has been tending upward in recent years. This is noted in respect to wheat in practically all wheat-growing countries. If we compare the average wheat yields per acre in the 10-year period 1891–1900 with those in the 10-year period 1901–1910, we find that in the United Kingdom there has been an improvement of 6 per cent, that is, from 30.1 to 31.9 bushels; in the Netherlands, of 19 per cent, or from 27.7 to 33 bushels; in New Zealand, of 28 per cent, or from 24.6 to 31.5 bushels; in Sweden, of 14 per cent, or from 24.2 to 27.6 bushels; in Germany, of 23 per cent, or from 23.6 to 29.1 bushels; in Ontario, of 12 per cent, or from 19.4 to 21.8 bushels; in Manitoba, of 7 per cent, or from 17 to 18.2 bushels; in France, of 8 per cent, or from 18.1 to 19.5 bushels; in Hungary, of 3 per cent, or from 17.3 to 17.8 bushels; in Japan, of over 2 per cent, or from 17 to 17.4 bushels; in Poland, of 3 per cent, or from 15.5 to 15.9 bushels; in Roumania, of 21 per cent, or from 14 to 16.9 bushels; in the United States, of 8 per cent, or from 12.9 to 13.9 bushels; in India, of 16 per cent, or from 9.7 to 11.3 bushels; in Caucasia, of 18 per cent, or from 9.5 to 11.2 bushels; in Russia, excluding Poland and Caucasia, of 14 per cent, or from 8.3 to 9.5 bushels. These countries are given in the order of their relative rank in yield per acre during the period 1891–1900. Satisfactory comparative data are not available for Argentina, the only other important surplus wheat-growing nation. Similar gains have been observed in other than wheat crops."

Official Definition of Farm is Given For Use of Enumerators in Census

What is a farm?

Because of general misconception concerning the use of this word the Bureau of the Census, for the simplification of record-taking by its enumerators, has defined the word "farm" in this wise:

"A farm for census purposes is all the land which is directly farmed by one person conducting agricultural operations, either by his own labor or with the assistance of members of his household or hired employees."

In further explanation of this definition the Census Bureau describes the term "agricultural operations" as referring to the work of growing crops, producing other agricultural products, raising domestic animals, poultry, or bees.

From this definition, a farm may consist of a single tract of land or of a number of separate and distinct tracts. These several tracts may be held under different tenures, as, for instance, one tract is owned by the farmer and another is rented by him. Thus, if a man who owns 100 acres rents an additional 10 acres from some one else and operates both the 100 acres and the 10 acres, then his "farm" includes both tracts of land comprising 110 acres.

By the same token, when a landowner has one or more tenants, renters, croppers, or managers, each different tract of land operated by such individuals is considered a separate and distinct farm by the Census Bureau. For example, if a man owning 120 acres of land rents 40 acres to a tenant, and farms the remaining 80 acres himself, his farm is the 80 acres which he operates, not the 120 acres which he owns, while the 40-acre tract which he rents to the tenant comprises a separate farm to be reported in the name of the tenant.

The importance of the agricultural enterprise largely determines whether or not it would be recognized in the census as a farm. A small vegetable garden, or a chicken yard accommodating a few industrious hens, will not be allowed to qualify as a "farm," no matter how successfully it is operated or what abundant profits accrue. After the garden or chicken yard expands until it includes at least three acres of ground, or until its care requires the continuous services of at least one person, or if it yields products which annually aggregate $250 or more in value, it comes within the census definition of a farm and will be recognized as such.

Information Furnished Enumerators Confidential

It is desirable that all farmers prepare for the coming of the census reporter, who will request from them information concerning the farm values, expenses, and live-stock sales, and acreage and quality of the crops raised during 1919. In order that the farmers may have this information readily at hand, it is suggested that they refer in detail to their books and records in time so as to have accurate answers available when the enumerators arrive. In this connection, the Bureau of the Census emphasizes the fact that the information furnished to census takers is absolutely confidential, made so by an act of Congress, and that under no circumstances can any such information be used as a basis for taxation.

"Cooperation between farmers and the census officials next January is more necessary and vital than ever before," declares the Director of the Census. "The World War and the part that the farmer played in it and will continue to play in the rehabilitation of Europe served to make the agricultural section of the Fourteenth Decennial Census the most important in the Nation's history. Absolute accuracy and completeness in the census returns is the goal toward which every citizen should strive."

GRAIN GRADING IN NEW ENGLAND

Arrangements have been completed for holding grain-grading demonstration exhibits at several New England points during the present month. The United States Department of Agriculture is sending from Washington a complete exhibit to demonstrate how corn, oats and wheat are graded under Federal standards. This exhibit will be shown at meetings of farmers, grain dealers and chambers of commerce through arrangements made with local organizations.

CIVIL SERVICE EXAMINATION

A competitive but nonassembled examination for specialist in cotton classing and for specialist in cotton marketing is announced by the United States Civil Service Commission for December 23, 1919. Entrance salaries range from $2,700 to $3,600 a year, depending upon the qualifications of the appointee. The Bureau of Markets of the United States Department of Agriculture is in need of suitable persons to fill vacancies at Atlanta, Ga., and Dallas, Tex., in the cotton quotation service, and in Washington in work in connection with the official cotton standards. These positions may be filled from this examination. Applicants should apply to the United States Civil Service Commission for Form 2118, stating that they are applying for examination for "Specialist in Cotton Classing or Marketing."

MORE PECANS FOR CHRISTMAS

The latest report on pecans shows the finest crop of record, considering the United States as a whole, the promise being for 89 per cent of a full crop. Last year 27 per cent of a full crop was realized. An unusual fact is that this year the promise is from good to excellent in practically all portions of the belt. The quality of the nuts is 88 compared to 73 last year.

The development of the pecan industry during the past 10 years has been remarkable. A ready market has developed for the improved varieties. Vast quantities of pecans were formerly allowed to waste in the forests, or were gathered only by the hogs, but the wild crop is now much more closely gathered and increasing attention is being given to the native groves. Immense plantings of improved pecan trees in the Southeastern States are coming rapidly into bearing, and the orchards that have been conducted on sound business principles are proving a profitable investment.

CARE IN POULTRY PACKING

Poultry shippers may avoid heavy losses from spoilage by proper methods of preparing and shipping their birds to market, say the specialists of the Bureau of Chemistry, United States Department of Agriculture, who have developed improved methods for bleeding, killing, chilling, storing, and packing poultry. While it is important at all times to observe proper precautions for preparing poultry for the market, it is of special importance to do so for the holiday markets because of the possibility of a combination of warm weather and a glut in the market causing heavy losses. If correct methods are followed poultry can be carried for some time even under adverse weather and market conditions with little loss from spoilage. Improperly packed poultry, however, under such adverse conditions is likely to be a total loss.

If you can't save the first dollar, you can't save the last. Invest every pay day in War Savings Stamps.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

MOSAIC DISEASE REMEDIES GIVEN IN NEW BULLETIN

The United States Department of Agriculture is issuing a bulletin containing several colored plates illustrating the mosaic disease of sugar cane, which should enable those interested in this disease of cane to identify it. The mosaic disease of sugar cane, which has been known for several years in a number of other cane countries, has recently been found in the southern United States. While this disease is quite widespread in the States, there are many disease-free areas from which clean seed cane may be obtained.

The mosaic disease, which has done considerable damage to the cane crop in Porto Rico and some other cane countries, is one of the most serious maladies that has confronted cane growers in recent years, and if unchecked may do incalculable damage to the great cane-growing sections of the South. The measures of control now being taken by the Federal authorities in cooperation with various local agencies were preceded by a complete survey of the Southern States undertaken to ascertain the extent of the infected areas.

In badly diseased fields the only remedy is to grind up all the stalks, say the representatives of the Department of Agriculture. This means, of course, that carefully selected seed cane must be brought in from other regions for replanting. There is still an abundance of healthy stock in Louisiana and the other cane States, so that the industry should not seriously suffer from these attempts at eradication. Where the disease has not obtained a strong foothold, roguing is recommended. This consists of pulling up infected plants, root, stem, and branch, and throwing them down between the rows. As soon as the plants wilt they are no longer dangerous as a source of infection. In damp regions, however, care must be taken to gather up these plants and burn them or otherwise destroy them, lest while lying on the ground they sprout and so spread the disease.

BIG WOOL CONSUMPTION RECORDED IN OCTOBER

Manufacturers used about 69,000,000 pounds of wool, grease equivalent, in October, 1919, the greatest amount consumed in any one month since May, 1918, when the wool textile industries' capacity was taxed by the war's demand, according to the monthly wool consumption report recently released by the Bureau of Markets, United States Department of Agriculture.

Of the amount used in October, 34 per cent was Fine; 18 per cent, ½ Blood; 17 per cent, ⅜ Blood; 16 per cent, ¼ Blood; 4 per cent, Low; 10 per cent, Carpet; and 1 per cent, grade not stated. More fine wool was used in October than in any month since the monthly wool reports were inaugurated. The heavy consumption of fine wool reflects the great demand for the finer qualities of wool which has been so pronounced during the last six months, say the Bureau of Markets' specialists.

Massachusetts still holds the lead with 25,612,133 pounds of all kinds, classes and conditions, followed by Pennsylvania, 8,979,814 pounds; Rhode Island, 6,936,621 pounds; New Jersey, 5,738,314 pounds, and New York, New Hampshire, Connecticut, Ohio, and Maine in the order mentioned.

The total amounts used, by condition, were: grease, 49,506,856 pounds; scoured, 8,561,958 pounds; pulled, 1,949,601 pounds.

Detailed monthly wool consumption reports will be sent to anyone addressing a request to the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

ONE LIVE WEEVIL DOES NOT MAKE WHEAT SAMPLE GRADE

"One live weevil or four 'confused flour,' 'rust red,' or 'imported flour' beetles or so-called bran bugs in a representative sample of wheat, approximately two quarts—that is, representative of the entire car lot—is not enough to warrant grading that parcel of wheat 'sample grade.'" This is the ruling from the Chicago Board of Review, Federal Grain Supervision, United States Department of Agriculture, in response to requests that a definite ruling be made in view of many recent arrivals of wheat containing weevils at Chicago and Kansas City.

In the case of grain in which live weevils are found, the board believes that one weevil in a representative sample of a car of sound, clean wheat is not conclusive evidence that the grain is infested, and may, therefore, be disregarded unless there is some further evidence of infestation.

If, however, but a single live weevil is present in a representative sample of a car, and additional indications of infestation, such as weevil-cut, or weevil-bored kernels, weevil odor or weevil refuse, are discovered, it is the board's opinion that there is clear evidence of infestation and the grade "sample grade" should be assigned.

Insects injurious to stored grain, other than live weevils, are not considered by the Board of Review as sufficient reason to grade wheat "sample grade," except when found in numbers. Such insects are more often found in oatmeal, corn meal, prepared-wheat products and flour, or other milled products, than in wheat.

HIDE AND SKIN STOCKS GROW

Total holdings of hides and skins for the month of October were 40,678,536, according to reports received by the Bureau of Markets, United States Department of Agriculture, from packers, dealers, importers, and tanners. This is a net increase of 3,308,558 over September.

Holdings of goat and kid skins showed the largest total increases, while cattle hides and calfskins showed decreases. Increases were also shown in the holdings of kip skins; horse fronts and butts; colt, ass, donkey, and pony skins; kangaroo and wallaby hides; and sheep, lamb, and buffalo skins.

FOREST LANDS CONSOLIDATED

The President on November 25 signed a proclamation effecting a consolidation of national forest lands within the Halsey Division of the Nebraska National Forest, by means of an exchange with the State. The State gives up almost all of the school sections scattered through the forest, amounting to 8,960 acres, and receives in exchange a fairly compact tract at the east end of the Halsey Division, amounting to 8,958.63 acres.

The first cargo of bulk wheat loaded for a foreign port from Portland, Oreg., since about 1893 left there in November. The cargo consisted of 4,000 tons grading No. 2 Soft White, dockage 1 per cent, and was taken by the French steamer *Mont Cenis*.

CATTLE FEVER TICK REPULSED IN MANY SECTORS THIS YEAR

Department Lifts Quarantine From 50,555 Square Miles in South

Advance of Tick-Free Line Opens Way for Safe Live-Stock Raising—Balanced Agriculture Made Possible

The cattle fever tick—worst enemy of live stock in the South—has lost his dominance over 50,555 square miles this year.

The Bureau of Animal Industry, United States Department of Agriculture, announces that on December 1 the Federal quarantine against the movement of cattle was lifted from 46,921 square miles. An area of 3,634 square miles was released from Federal quarantine on September 15.

The 1919 releases do not make this year, in point of actual territory placed in the free area, the greatest year for tick eradication, but they do mean a great amount of consolidation work and "mopping up" in areas previously released, and it is abundantly true that the tick map—the map in which danger to cattle is indicated by red—this year has been "shot full of holes."

In 1906 a solid band of red covered all the Southern States. The quarantine line extended from Virginia to Texas and reappeared in California. The attack against the tick since 1906 has driven the parasite out of California, Missouri, Kentucky, Tennessee, South Carolina, and Mississippi—completely in the infected portions of the four States first named, and completely enough in the last two to justify their release from Federal quarantine.

Areas in Six States Released

The territory released this year is divided between six States. Alabama leads the list with 12,991 square miles placed in the unrestricted area. The others are Louisiana, with 9,299 square miles; Texas, 8,847 square miles; Arkansas, 8,130 square miles; Georgia, 6,942 square miles; and Oklahoma, 4,346 square miles. No releases were ordered in Florida or North Carolina, where active work is going on in preparation for strong attacks next year.

Alabama's work this year, resulting in the State leading in territory released, is credited to the operation of the State-wide tick-eradication law which became effective last spring. In Louisiana only seven parishes are left under quarantine. It is expected that all of them will be fully cleaned up next year and that thus the tick-free highway to the Gulf, made when Mississippi drove out the tick, will be greatly widened.

In Texas gains have been made in a number of areas, including Tarrant County, where the Fort Worth Stock Yards are located. This means that the Fort Worth Stock Yards, the great cattle market of Texas and the Southwest, will henceforth be in the free area, and that ticky cattle can not be shipped there unless they go in under quarantine restrictions.

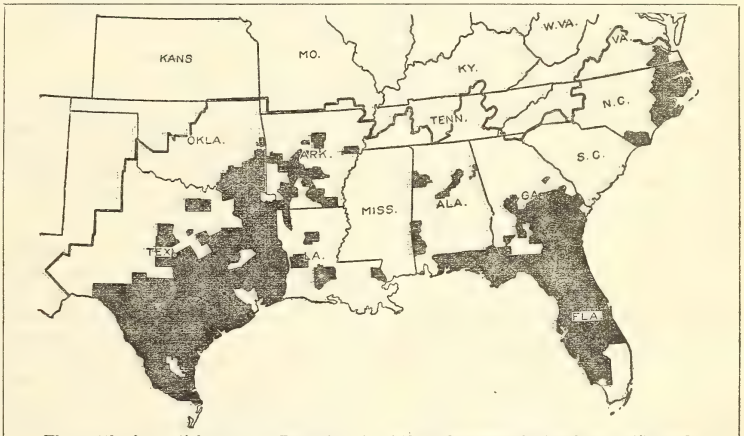
Officials of the Bureau of Animal Industry regard this year's progress in the tick fight as encouraging and see in the results added reason for believing that the tick will be completely driven from American soil within a few years. State and county officials and farmers and live-stock owners generally have cooperated in good fashion with the bureau force. The menace of the tick and what the parasite has meant in annual damage of at least $40,000,000 to the southern live-stock industry appears to be well recognized. The steady advance of the work is shown by the fact that in 1906, 728,565 square miles were tick infested, while the December releases will bring the area freed from quarantine to 509,084 square miles, or 70 per cent of the area originally placed under restrictions.

Advantage of Tick-Free Areas

The areas freed from the tick this year are placed in position to proceed with the development of their beef cattle raising and dairying industries without paying an annual tribute to the cattle parasite. Better cattle can be brought in without fear that they will contract the deadly fever that is carried by the tick.

The extermination of the tick from the South clears the way for better agriculture of every sort. For instance, it makes possible active work, with regard to cattle, in the "Better Sires-Better Stock" campaign, in which the United States Department of Agriculture is cooperating with the States.

That tick eradication pays has been answered in every community freed of ticks by better cattle, better agriculture in general, better prices, and higher real estate values. The cost of eradication has been found to be from 18 to 50 cents to a head of cattle, while the increased value of each animal is greatly in excess of this. One canvass resulted in an estimated average increase in value of $9.76 a head, and this canvass if made to-day would probably show a higher figure. Added to the strictly monetary advantage is the feeling of satisfaction of the cattle raiser when he knows that his animals are converting their food into flesh and milk and not into blood-sucking parasites, and that his cattle are free to be sold anywhere in the United States on equal terms with all others.



The cattle fever tick map on December 1, 1919. The areas in black are still under Federal quarantine. In the white areas below the heavy black line the people have dipped out the tick and thus have laid the foundation for safe live-stock raising. California, which has been free from ticks for several years, is not shown on this map.

COUNTIES RELEASED FROM CATTLE-TICK QUARANTINE

The effect of B. A. I. Order 269, issued by the United States Department of Agriculture and effective December 1, 1919, in regard to the Federal quarantine restrictions to prevent the spread of the cattle fever tick and tick fever, is as follows:

In Alabama the following counties are released from quarantine: Butler, Covington, Chilton, Escambia, Franklin, Geneva, Lawrence, Marion, and Winston; the remainder of Perry and Marshall; and a portion of Calhoun, Cherokee, Cleburne, St. Clair, Mobile, Shelby, and Bibb.

Choctaw County and a portion of Houston County are requarantined.

In Arkansas the following counties are released from quarantine: Arkansas,

Cleveland, Drew, Howard, Little River, Lincoln, Pike, Polk, and Sevier; the remainder of Prairie and Pulaski; and a portion of Clark, Miller, Saline, and White.

St. Francis County and a portion of Conway and Faulkner Counties are requarantined.

In Georgia the following counties are released from quarantine: Calhoun, Carroll, Chatham, Clay, Colquitt, Early, Jones, Marion, Miller, Monroe, Schley, Screven, Sumter, Tift, Turner, Twiggs, Webster, and Wilkinson.

In Louisiana the following parishes are released from quarantine: Assumption, Iberia, Lafayette, Livingston, Natchitoches, Plaquemines, Rapides, St. Martin, St. Mary, Vermilion, and West Carroll; and the remainder of Ascension, Iberville, St. James, and St. John.

In Oklahoma the following counties are released from quarantine: Carter, Coal, and Pittsburg; the remainder of Cherokee, Haskell, Johnston, Muskogee, Love; and a portion of Latimer, Le Flore, and Sequoyah.

In Texas the following counties are released from quarantine: Bowie, Hamilton, Llano, Madison, Menard, Tarrant, and Van Zandt; and the remainder of Jack, Johnson, Hood, McCulloch, and Parker.

RECOMMENDATIONS IN REPORT OF SECRETARY OF AGRICULTURE

(*Continued from page 1.*)

State and Federal Governments, cooperating in organizing the service and sharing the cost. Assistance to private owners in perpetuating their forests by proper management. A larger program of publicly owned forests, and the consolidation of existing national forests through exchange with private owners. A detailed inventory of present forest resources and a survey of present and prospective needs for forestry products.

New Department Work

An appropriation of $611,900 to carry out the enlarged program for work in the field of farm management and farm economics, including cost-of-production studies. Approval by Congress of plans for extending the work of the Bureau of Crop Estimates.

Further Assistance in Marketing

The doing of everything that legitimately can be done to eliminate wastes and abuses in marketing and to promote orderly distribution. Expansion of existing marketing activities and facilities, including especially the extension of the market news and food products inspection services and the assignment of specialists to each State to aid cooperative associations.

Good Roads

Continued Federal participation in the building of good roads by making available from the Federal Treasury, to be expended under the terms of the present Federal law, as amended, and through existing machinery $100,000,000 for at least each of the four years beginning with the fiscal year 1922, if the financial condition of the Nation permits it.

Personal-Credit Unions

The building up, primarily under State law, of a system of personal-credit unions, especially for the benefit of farmers whose financial status and scale of operations make it difficult for them to obtain accommodations through ordinary channels.

Regulation

Regulation and control of stockyards and packing houses. Federal legislation further to protect consumers against misbranded, adulterated, and worthless feeds entering into interstate commerce. Similar legislation dealing with fertilizers.

Rural Survey

A fresh, broad survey of rural life, its special problems and relationships, through a conference at which there will be a generous representation of farmers, of agricultural agencies, and organizations, and of business interests which have an intimate relation to farm problems. Consideration by the conference of the desirability of creating a rural life commission having a temporary or a permanent status.

FARMERS' EFFORTS IN 1919

(*Continued from page 1.*)

is estimated, will yield 635,000,000 bushels more than the prewar average, and increased the number of milch cows over 1914 by 2,700,000, of other cattle by 8,500,000, of swine by 16,700,000, and of horses and mules by 1,000,000, or a total of 28,900,000. The planting operations for the year began before the fighting ceased. The call was still for more wheat. The department suggested a maximum fall acreage of 47,206,000 acres, an increase of 12 per cent over 1918. There was actually planted 49,261,000, the largest acreage in the Nation's history, 6,960,000 acres more than in 1918 and 15,608,000 more than the five-year average, 1910–1914. The spring-wheat acreage was 22,593,000, while the winter and spring plantings combined amounted to 71,854,000 acres, or 7,200,000 more than the preceding record and 19,400,000 more than the prewar average. It is estimated that the yield will exceed that of 1918 by 1,000,000 bushels and will be the Nation's second record wheat crop. The estimated corn crop of 2,910,000,000 bushels will be 300,000,000 greater than that of 1918 and only slightly less than the high yields of 1915 and 1917.

1919 Crops Would Have Been Greatest

"If the fighting had continued and the season had been favorable, there is little question that the farmers of the country would have planted an aggregate crop acreage during the winter and spring greater than that for any preceding year in the Nation's history.

"Forecasts of meat production for 1919, from partial reports of slaughtering, indicate that the record figure of last year—20,250,000,000 pounds—will be exceeded. The total will probably reach 21,000,000,000 pounds, as follows: Pork, 12,900,000,000 pounds, compared with 11,248,000,000 in 1918 and 8,769,000,000 in 1914; beef, 7,500,000,000 as against 8,500,000,000 in 1918 and 6,079,000,000 in 1914; and mutton, 600,000,000 pounds as against 537,000,000 in 1918 and 739,000,000 in 1914.

"A rough estimate, based upon the number of milch cows and the census average of milk production per cow, indicates that the number of gallons of milk produced in 1919 will aggregate 8,495,000,000, or 57,000,000 more than in 1918 and 1,029,000,000 more than the average for 1910–1914. The figures for poultry and egg production have not been accurately ascertained, but it is roughly estimated, upon the basis of reported increases from one census to another, that egg production in 1919 will aggregate 1,957,000,000 dozen, as against 1,921,000,000 in 1918 and 1,774,000,000 in 1914, and that the number of poultry raised on farms will approximate 600,000,000.

Increased Exports After Armistice

"The exports of foodstuffs, enormous during the war, rose greatly between the armistice and midsummer. The annual average exports of important cereals for the five years preceding the war were 162,000,000 bushels. They rose to 517,000,000 in 1915 and aggregated 448,000,000 in 1919. Dairy products, of which 25,000,000 pounds were exported on the average during the five-year period before the war, increased in volume to 102,400,000 pounds in 1915, 217,500,000 in 1916, 352,000,000 in 1917, 592,000,000 in 1918, and 781,000,000 in 1919; while the exports of meat and meat products were 1,291,000,000 pounds for the five-year average before the war, 1,500,000,000 in 1915, 1,800,000,000 in 1916, 2,300,000,000 in 1918, and 3,300,000,000 in 1919."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Saving High-Priced Soil.

Problem for the class in intermediate arithmetic: Find the number of cubic feet in the top 6 inches of soil from 170,000 acres of land.

That sounds sufficiently unrelated to common experience to be a problem in the old-time school arithmetic, but, as a matter of fact, it is what Iowa has been losing every year in the water that flows over its fields. Specialists of the United States Department of Agriculture, who have worked in various sections of Iowa during the past several months, estimate that each county in Iowa—and there are an even hundred of them—loses annually 6 inches of soil from the top of 1,700 acres of land. Henceforth, these specialists think, not so much good soil will be washed away. The recent high prices of Iowa farm lands, injurious in some particulars, has been beneficial in causing Iowa farmers to realize that they can not afford to permit such valuable stuff as dirt be carried away in rain water. A keen interest has been developed in good drainage as a result of high prices.

Beekeepers Go to School.

The beekeepers of several States which boast of large honey production are going back to school. Under the direction of representatives of the United States Department of Agriculture short courses for commercial beekeepers are now being conducted in Idaho, Washington, California, and Texas. During the first two months of the new year similar instruction will be given in Ohio, Kansas, Iowa, Minnesota, and New York. There is particular need this season that owners of apiaries have all possible assistance because the shortage of sugar promises to make it difficult to carry the swarms through the winter.

Gardening in National Capital.

One of the most striking examples of what may be accomplished in food production is that of the Potomac Park home gardens, located in the District of Columbia almost within the shadow of the Washington Monument. This year there were 300 gardens, supervised by the United States Department of Agriculture, each 40 feet by 100 feet in size, and occupying in all approximately 35 acres. According to reports recently received from the gardeners, and based on actual records, these gardens gave an average return of $84 a garden, or over $25,000 for the 300 gardens. This means that no less than 300 families living in the District of Columbia not only have supplied their tables with fresh vegetables throughout the summer, but now have on hand a considerable supply of food for winter use. In addition, approximately 1,200 people have enjoyed outdoor exercise and healthful recreation.

This is but one instance where the city home garden has resulted both in the production of large quantities of food and in providing the people with outdoor life exercise. The need for home gardens will be just as great in 1920 as during the past season. Now is the time to perfect organizations and secure land on which to plant gardens next year.

Turpentine Timber Bids High.

A new high mark for turpentine timber value in Florida is indicated by the latest bids received for three sections of timber on the Florida National Forest. The round average bid for all the turpentine timber offered on the forest was $225 a thousand, and for the three sections mentioned above the highest bid was $256.50 a thousand. This is more than $50 in advance of the highest bid previously received, according to the Forest Service of the U. S. Department of Agriculture.

California Has Big Rice Crop.

In eight years the Sacramento Valley of California has developed a new agricultural industry, rice growing, which this past season has resulted in a gross production estimated to be worth approximately twenty-one millions of dollars. This showing is the result of research carried on by the Bureau of Plant Industry of the Department of Agriculture. Following experiments by the bureau covering three years, the first commercial rice crop was planted in 1912. The value of the 1919 rice crop in California will probably be several millions greater than that of wheat and peaches, both of which are commonly thought of as relatively large crops in that State.

Hot Water Disinfects Soil.

The need of a simple, practical method for disinfecting small quantities of soil in which to grow healthy seedlings for home garden planting, now made more emphatic because of the great expansion of tomato and other club work, has prompted the Bureau of Plant Industry of the United States Department of Agriculture to obtain more accurate data on the effectiveness of hot water as a means of ridding soil of the root-knot nematode, and certain parasitic fungi usually associated with root troubles. By means of a large number of tests it was found that an application of boiling water at the rate of 7 gallons per cubic foot of soil in shallow benches practically eliminated the parasites. Applying this method to the needs of boys' and girls' garden club work, where the size of the seedbox or flat commonly used is 14 by 30 by 3 inches, 4½ gallons of boiling water would be necessary to disinfect the soil in such a flat.

In all cases a marked increase in the percentage of germination and in the size and vigor of plants grown in the treated soil was observed. Substantially the same method of killing plant parasites in the soil has been used with some success in certain vegetable greenhouses; but the department's experiments serve to determine accurately the temperatures required and also the necessary quantities of hot water. The root-knot nematode can be eliminated from the soil contained in a 4-inch pot by submerging it for 5 minutes in water brought to a temperature of 208 degrees Fahrenheit. In 8-inch pots the organisms are killed by an application of boiling water at the rate of about 3 quarts to a pot.

Sugar-Beet Seed Production.

Revised estimates of sugar-beet seed produced in the United States in 1919 show a total production of approximately 6,700,000 pounds on a total acreage of 11,100 acres, with an average yield of 600 pounds an acre. Earlier estimates, based on reports of growers, indicated a total production of 7,500,000 pounds. It developed, however, that the average yield per acre in Idaho and Michigan was much smaller than was anticipated by the growers. Considerable acreage in Idaho was reported to be a total failure.

The 1919 production still is 800,000 pounds greater than the total production in 1918, 1,620,000 pounds greater than in 1917, and 1,160,000 pounds greater than in 1916.

Will Teach Grain Grading.

Grain grading is to be taught at the College of Agriculture of the University

of Kentucky. Samples of grain showing the various kinds, classes, and grades have been furnished the college by the Louisville Federal Grain Supervision office at the request of the college.

Best Month in TB Drive.

More official tuberculin testing of cattle was conducted during October, 1919, than in any previous month of any year, according to a summary just issued by the Bureau of Animal Industry, U. S. Department of Agriculture. During the month 57,270 cattle were tested by State and Federal veterinarians engaged in cooperative tuberculosis-eradication work. Herds or lots tested numbered 3,251 and the total number of reactors found was 2,821, an average of slightly less than one reactor for each.

From the standpoint of the number of animals tested the drive against tuberculosis was most vigorous in Minnesota, where 6,269 cattle underwent the test. Vermont was second with 4,035 and Washington third with 3,855 cattle tested.

The figures, live-stock specialists of the department point out, indicate the nation-wide extent of the campaign to stamp out the disease. At the end of October the total number of herds officially accredited as free from tuberculosis after a number of tests was 1,324, more than double the number at the beginning of the year.

Pickle Crop Smaller.

Of 509 pickle packers on the lists of the Bureau of Crop Estimates, U. S. Department of Agriculture, 405 reported that they had contracted for and harvested 40,211 acres of cucumbers this year. This compares with 65,487 acres reported by 475 packers as having been contracted for and harvested in 1918. Based on reports received from the packers as to the average yield per acre this year, it is estimated 2,162,036 bushels were produced this year on the contracted acreage reported, as compared with 6,818,322 bushels in 1918. No stock procured in the open market is included in the above estimates.

Farm Bureau Active.

The Otsego (N. Y.) Farm Bureau has adopted a plan by which it intends to completely eradicate tuberculosis in cattle from the county in five years. The 5,500 farmers in the county own approximately 100,000 head of cattle, nearly all of which are of dairy breed. Sixteen herds are under Federal supervision for tuberculosis eradication, and a number of these herds are ready to be accredited as disease free. There is also a farm improvement association in connection with the bureau which has a fund of $125,000 to be spent on agricultural development in the county.

Not Coddling Codling Moth.

With the apple crop of the country pretty well harvested, it is apparent that control of the codling moth has been more effective this year than for many seasons past, according to deciduous fruit specialists of the Bureau of Entomology, United States Department of Agriculture. Because of the unusually high value of the apple crop, the specialists expect that the results obtained will stimulate similar thorough work another year.

Idaho for "Better Sires."

Idaho is conducting a live stock improvement project in 32 of the 44 counties in the State and recently has adopted the cooperative "Better Sires—Better Stock" plan as a means of hastening progress. Under this plan live-stock owners who use purebred sires at the head of their herds and flocks receive a certificate of official recognition issued jointly by the State Agricultural College and the United States Department of Agriculture.

L. W. Fluharty, director of extension in Idaho, has notified the department that the work will be carried on through the farm bureaus in the various counties.

COUNTRY PEOPLE CONSUME MORE PORK AND POULTRY

That the farmers are the chief pork and poultry consumers, when a comparison is made on a per capita basis, while the city dwellers eat a greater proportion of beef, veal, and mutton is shown by the estimates of the per capita consumption of each kind of meat and poultry by the urban and rural population, which have just been completed by the Bureau of Crop Estimates, United States Department of Agriculture. This is the first adequate information concerning the meat consumption of various sections of the country and of the city and country population that has ever been obtained.

The total meat consumption per capita is 9 per cent greater in the country than in the city, and excess in varying degrees is found in every one of the customary geographic divisions. Beef consumption is nearly two-thirds greater in the city than in the country.

In both veal and mutton consumption, per capita, the city exceeds the country, veal by 119 per cent and mutton by 43 per cent, and there is a varying preponderance of the city consumption in all sections, except that mutton consumption per capita is greater in the country in the West; that is, between the Great Plains and the Pacific Ocean. If beef, veal, and mutton are combined, the city exceeds the country in per capita consumption by two-thirds.

What the country loses in comparison with the city in the per capita consumption of beef, veal, and mutton is more than offset by what it gains in the consumption of pork and poultry. These are the meats, if poultry may be called meat, that are more especially adapted to the country than the others. The per capita consumption of pork and poultry in the country is everywhere above that in the city, and for the United States as a whole the country is higher by nearly two-thirds for pork and more than one-half for poultry.

Expressed in another way, the city consumes more beef, veal, and mutton per capita than it does pork and poultry by 9 per cent, but the country consumes more pork and poultry per capita than the other meats by 150 per cent; and in the city, pork and poultry are 48 per cent of the total meat consumption (including poultry), and in the country 71 per cent.

Beef, veal, and poultry consumption per capita are higher in the North than in the South, but in pork consumption the South is higher. The West is above the other sections in beef and mutton consumption and is barely below the leading section, the north Atlantic, in veal consumption, but it is lowest in poultry consumption, and except in comparison with the north Atlantic States, is lowest in pork consumption.

NORTH CAROLINA OUT FOR PUREBREDS

Evidence of North Carolina's deep interest in the "Better Sires—Better Stock" campaign is found in the recent purchase of 140 grade ewes and 40 purebred rams for farmers in that State by a representative of the State agricultural extension service. Many parts of the country were visited in procuring these animals, the prices of which ranged from $50 to $100 a head. The increasing demand for better sheep in various regions of the country prevented the purchase of all the animals desired. Another stock expert has been empowered to purchase a carload of purebred milking Shorthorn cattle for farmers in the western section of the State.

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GET READY FOR ICE HARVEST; PRODUCTION COST STILL LOW

Dairymen May Save Much Money By Efforts in Winter

Ponds from Which Cuttings Are to Be Made Should be Cleaned Before Freezing Weather—Other Suggestions

Each year dairymen lose thousands of dollars from returned sour milk, poor butter, and low-quality cheese. These losses are largely due to improper cooling of milk and cream on the farm, according to dairy specialists of the United States Department of Agriculture. For good results, milk and cream should be cooled to 50 degrees or lower and held there; and as this usually can best be done by the use of ice, dairymen should take advantage of any near-by lake or stream to obtain a supply of ice for next year.

Ice Costs Little

The ice-harvesting season fortunately comes at a time when there is the least work on the farm for men and teams, and consequently the actual money cost is usually not very great.

The quantity of ice needed depends upon the location of the farm—whether in the north or in the south, the number of cows milked, and the method of handling the product. In the northern States it has been found that, with a moderately good ice house, one-half of a ton of ice per cow is sufficient to cool cream and hold it at a low temperature for delivery two or three times a week. One and one-half or two tons per cow should be provided where milk is to be cooled.

Capacity of Ice Houses

A cubic foot of ice weighs about 57 pounds, so in storing ice it is customary to allow from 40 to 50 cubic feet per ton for the mass of ice. At least 12 inches must be left between the ice and the wall of the building for insulation, unless the ice house has permanently insulated walls and an unusually large space for insulation beneath and above the ice. From these figures it is possible to calculate readily the quantity of ice that any given ice house will hold.

Where a lake, pond, or stream of clear water is not available, some preliminary work in preparing the ice field will be required before freezing weather sets in. It is therefore advisable to make all plans for the work as soon as possible. Water for the ice supply should be entirely free from contamination or pollution. Ponds and sluggish streams usually have grass and weeds growing in them, so that the ice harvested is likely to contain decayed vegetable matter, which is always objectionable. They should therefore be thoroughly cleared of such growths before the ice has formed.

SQUARE FEET OF ICE SURFACE REQUIRED PER TON OF ICE.

Thickness of ice.	Number of cakes required per ton.	Cutting space required per ton.
Inches.		*Square feet.*
4	31.3	105.4
6	20.9	70.2
8	15.6	52.6
10	12.5	42.1
12	10.4	35.1
14	8.9	30.1
16	7.8	26.3
18	6.9	23.4
20	6.3	21.1
22	5.7	19.1

In some sections it is necessary to impound the water for producing ice. This may be done either by excavating, and diverting a stream into the excavation, or by constructing dams across low areas. In localities where very low temperatures prevail for several weeks at a time, and the supply of pure water is limited, blocks of ice may be frozen in metal cans or in special fiber containers.

Size of the Ice Field

In harvesting ice it is desirable to have a field of sufficient size to fill the ice house at a single cutting, as the thickness and quality of the ice will be more nearly uniform, and the necessary preparation for cutting and harvesting need be made but once. In many instances, however, the size of the pond or stream is such that

(*Continued on page 2.*)

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SOUND POLICIES OF FORESTRY ADVOCATED IN UNITED STATES

Need for Comprehensive Program Set Forth by Secretary Houston

Protection of Woodlands, Conservation on Private Lands, and Safeguards Against Fire Are Asked—An Aid to Agriculture

"Timber is an important farm crop."

The average farmer probably has never stopped to think about this fact. At least, he apparently has never taken it into account in his farm operations. But the value of the products from the farm wood lot was greater than the potato crop and nearly double that of the tobacco crop in the last census. Farmers also consume more wood than any other group.

These facts are brought out by David F. Houston, Secretary of Agriculture, in discussing the policies and practices which should be followed in protecting and developing the forest resources of the Nation. In his annual report the Secretary asserts that the continued dissipation of privately owned forests in every timber-producing region of the country is a matter of grave concern, and that the public does not fully realize its seriousness.

"If the area having little or no value for other than forest purposes is not protected," says the Secretary, "much of it will become practically nonproductive. Millions of acres in the older parts of the country, where supplies of timber are needed by the communities, have become almost valueless. Where the land is not valuable for agriculture, large-scale lumbering operations are followed by local industrial depression, the timber industries migrate, population decreases, farmers lose their local market, taxable values decline, schools and roads deteriorate, and the economic and social life of the community suffer.

Public Cooperation and Direction Needed

"The problem presented is very difficult. Public forests are confined to rela-

tively limited areas, except in the West. These will by no means supply the future needs of the country. At present the greater part of the lumber produced annually is cut from private lands on which the appearance of new growth is at best a matter of accident, is likely to be long delayed, or may never occur. Without concerted action under public cooperation and direction the problem will not be solved. Private initiative can not be depended upon to secure the requisite conservation.

"The preservation of forests in all forest regions is of immediate concern and importance to farmers. Timber is an important farm crop. Farm woodlands comprise about 20 per cent of the farm area of the country. At the last census the value of the products from them was greater than that of the potato crop and nearly double that of the tobacco yield. Forestry, therefore, must be assigned a place in farm management. Farmers also are vitally concerned with national forestry problems. They consume more wood than any other group and they are interested in seeing that there is available, at reasonable prices, a continuous supply of lumber and other forest products. A sound forestry policy does not conflict with agricultural settlement. In fact, it facilitates the cultivation of land suitable for agriculture, and also seeks to secure the proper handling of existing forests and the reforestation of denuded regions. On the other hand, forest devastation retards agricultural development."

Fire Protection Essential

Fire, the Secretary points out, is a great menace not only on forested but also on cut-over areas. "Adequate protection," he says, "should be required of all owners. The public, through both the State and Federal Governments, should cooperate in organizing this service and should share the cost of maintaining it. It should also adopt such practical measures as may be necessary to bring about the discontinuance of all practices which result in turning the forests into wastes, and should aid private owners to perpetuate their forests by proper management. A well-balanced policy requires a much larger program of publicly owned forests than at present."

Not only should the policy of extending the national forests by purchase, under the terms of the Weeks law, be continued, in the opinion of the Secretary, but the consolidation of national-forest areas through exchange with private owners should be accelerated.

"Good forestry practice," concludes the Secretary, "rests upon the possession of full and accurate data. Our present knowledge of the methods of securing the largest yields is inadequate. There is need of further information regarding the amount, quality, and distribution of existing timber supplies. A detailed inventory of our present resources and a survey of present and prospective needs are essential for constructive planning."

GET READY FOR ICE HARVEST; PRODUCTION COST STILL LOW

(*Continued from page 1.*)

it is necessary to wait for a second crop in order to fill the ice house. The average farmer requires only a comparatively small quantity of ice, so that even a small harvesting surface will usually prove large enough, especially if ice is cut the second time. The square feet of surface required per ton when the ice is of different thicknesses is shown in the accompanying table. Size of cake, 22 by 22 inches.

Few Tools Required

When a small quantity of ice is to be harvested but few tools are required. The following list contains those actually needed for harvesting ice on a small scale: Two ice saws, one hand marker, one pulley and rope, two pairs of ice tongs, two ice hooks, one pointed bar, and one straight edge. While these tools are all that are necessary, additional ones, such as the horse plow and marker, horse scraper and marker, and a calking bar, are convenient, and will help to expedite the work of ice harvesting.

ONLY TWO FAIL IN GRAIN TEST

Twenty-three out of twenty-five samples of wheat were graded correctly in a recent test at the grain-grading meetings in Portland, Oreg. The two men who were not perfect in the test had attended the meetings only three times. In spite of this their errors were very slight.

These meetings were begun by the Federal grain supervisor the last of August and have been continuing weekly since. State inspectors, samplers, weighers, dock and elevator superintendents, and members of the trade have been the students. The average attendance up to date has been 25.

MANY HOGS SOLD IN MISSISSIPPI

The agricultural agent of Grenada County, Miss., has so thoroughly popularized hog shipping enterprises among the farmers of his locality that his September Pig Club marketed 63 carloads of hogs.

HIGHWAY WORK GOES FORWARD; ACTIVELY RESUMED AFTER WAR

Progress of Federal Aid Undertakings Described by Secretary

No Special Obstacle Is Seen In Way of Construction of Needed Roads—All States Have Complied With Act

Delayed in its program of good roads construction by the war and confronted at the end of that period by a condition of badly run-down highways, the Federal Government, cooperating with the highway departments of the several States, has resumed the vigorous prosecution of the work, and, says David F. Houston, Secretary of Agriculture, there is now no special obstacle to the construction, in the different States of the Union, of those roads which serve the greatest economic needs. In his annual report, Secretary Houston says:

Good Roads Essential

"Good roads are essential to the prosperity and well-being of urban and rural communities alike. They are prerequisite for the orderly and systematic marketing of farm products, for the establishment of satisfactory rural schools, and for the development of a richer and more attractive rural life. Recognizing these facts, the Federal Government, through the passage of the Federal-aid road act in 1916, inaugurated a policy of direct financial participation in road-building operations in the various States. This act appropriated $75,000,000, to be matched by an equal amount from the States, for the construction of rural post roads over a period of five years, and $10,000,000—$1,000,000 a year for 10 years—for roads within or partly within the national forests. It required each State to have a responsible central highway commission with the requisite powers and funds. All the States have complied with the terms of the act, although it was necessary for them to enact additional legislation, or to amend their constitutions; to provide sufficient funds to match the Federal apportionment; and to strengthen existing central highway bodies or to create new agencies.

Work After Armistice

"When these preliminary steps had been practically completed and the department and the States were about ready to proceed vigorously with the actual construction of roads, the United States entered the war. It soon became necessary greatly to curtail highway

building because of the difficulty of securing transportation, construction materials, and the requisite services. After the armistice was signed arrangements promptly were made for the active resumption and vigorous prosecution of road work in all sections of the country, not only with a view to repair the damage wrought by the heavy traffic forced upon our highways during the war, when maintenance operations were seriously interfered with, but also to provide adequate transportation facilities to serve the increased needs of agriculture and industry. Recognizing also that road-building activities would furnish suitable employment for many unemployed men during the period of transition from war to peace, the Congress at its last session, accepting the recommendation of the Department of Agriculture, appropriated $209,000,000, in addition to the $85,000,000 provided by the original act, for the extension of road construction in cooperation with the States, and also made some important amendments to the act. The definition of the kind of roads that can be constructed was greatly broadened and the limitation on the Federal contribution for any one road was increased from $10,000 to $20,000 a mile. These amendments have greatly facilitated consideration of and action upon the road projects submitted by the State highway commissions. There is now no special obstacle to the construction, in the different States of the Union, of the roads which serve the greatest economic needs."

BLACK LOCUST PROFITABLE FOR GROWING ON FARMS

Black locust—known also as "yellow" locust—is one of the most profitable and useful kinds of timber for the farm. The wood is heavy, hard, and particularly durable when used in the ground. For use as fence posts, black locust is long-lived and very desirable. Only one other wood gives longer service, namely, osage orange or "bois de'arc," which, however, nowhere occurs in abundance and is so hard that it is difficult to drive stapes into it except when it is green.

Black locust grows rapidly and yields good-sized fence posts at an age of from 14 to 20 years, according to the Forest Service, United States Department of Agriculture. A worn-out field in middle Tennessee which, 20 years previously, had been planted with 1-year-old locust seedlings, yielded fence posts worth $188 an acre on the stump, or $480 at the railroad about 2 miles distant. This was a gross return of $9.40 an acre yearly on a hillside of fairly good soil which before the trees were set out had started to gully badly. Returns of $5 to $7 an acre annually have frequently been realized on poor, thin, hill land. Good soils underlain with limestone and planted to black locust in the Appalachian and Piedmont regions, from Pennsylvania to Kentucky and Tennessee, can be counted on to yield an average of $10 an acre yearly at the end of from 15 to 20 years.

The manufacture of insulator pins requires large amounts of black locust, for which purpose it is the most satisfactory wood.

In starting black locust, small sprouts with a portion of the root may be dug up and used; or, better, the seed may be sown in the spring in drills in good soil, like onion seed. At the end of the season the seedlings will be from 2 to 4 feet in height and satisfactory in size for setting out. This may be done in the late fall, but the spring season, about the time growth starts, is preferable. In some regions the locust wood borer is almost certain to cause extensive damage to young plantations unless special precautions are taken to keep the trees in a healthy growing condition and the bark shaded by foliage, either from near-by trees, shrubs, or weeds. Information on this insect and methods of its control will be found in United States Department of Agriculture Bulletin 787, "Protection from the Locust Borer."

Strange as it may appear, black locust, although one of the most durable woods when set in the ground, matures early and deteriorates in the tree rapidly if not cut when ripe. Commercially the tree is usually mature in 15 to 25 years.

Shippers of potatoes will profit by heeding market demands and preferences. Dealers and consumers do not desire badly cut, mashed, frosted, and decayed potatoes or those damaged by sunburn, blight, dry rot, or an excess of scab or second growth. Markets frequently are overloaded, prices seriously affected, and unnecessary losses sustained by growers because of the shipment of such unsatisfactory stock.

Milk Kept Sweet for Eighteen Days by Clean Production and Proper Cooling

When a bottle of cream shipped from Los Angeles to the National Dairy Show at Chicago was opened and tested 18 days after it had left the cow, it was pronounced in perfect condition by those who examined it. Other samples of milk and cream entered in the national milk and cream contest and examined 15 to 18 days after production were also found to be sweet.

Because of the number of bacteria present, ordinary milk will not remain wholesome for such a long time, even if kept cold. The milk and cream which made such long-keeping records were produced under very sanitary conditions, and every precaution was taken to keep them clean and to keep the bacteria count low. Furthermore, the milk was cooled to a low temperature immediately after it was drawn, and held there. The success attained in producing milk of such long-keeping qualities and low-bacteria count is due in a large measure to the educational value of the local milk and cream contests which have been especially popular in cities of the Pacific Coast States.

Packed in Crushed Ice

The bottles of milk, which were placed in boxes, and surrounded with crushed ice, were kept at a temperature from 32° to 34° F. at all times. The boxes were shipped in baggage cars to Chicago, and most of them were not re-iced along the route. An inspection of the samples on arrival at Chicago showed that of the various methods of packing, the insulated box filled with crushed ice was the most effective. The bottles of milk in these boxes were entirely surrounded by the ice, which was packed in as tightly as possible. One or two samples which were packed in ice and sawdust arrived in a spoiled condition, due to the fact that a low enough temperature had not been maintained. The ice in the insulated boxes lasted well, and one box from Portland, Oreg., which was re-iced at Minneapolis on Tuesday did not arrive in Chicago until the following Saturday, but was still in good condition.

Long Shipment Possible

When milk is produced and handled under the right conditions it can be shipped to almost any point in the United States, or to foreign countries, and arrive in good condition, according to dairy specialists of the United States Department of Agriculture. At present considerable quantities are being shipped to Panama, and are used on ocean liners plying between this country and Europe.

Weekly News Letter

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CONTROLLING CORN WEEVIL IS PRIZE-WINNING TASK

The Marion County, Fla., agricultural agent, cooperating with the Bureau of Entomology's field agent in Florida, reports his most valuable work to be controlling the corn weevil. During the current season approximately 850,000 bushels of corn were raised in his county. The agent held a series of meetings and gave illustrated lectures about the evils and control of the corn weevil, with the result that a great many farmers have built tight cribs for the proper housing and fumigation of their corn and as a direct consequence many thousands of bushels of corn have been salvaged.

An air-tight crib large enough to store a reasonable amount of corn is the first essential in combating the weevil. It is also necessary that the corn be thoroughly dry to prevent heating before it is placed in the cribs for fumigation. The best results usually follow where the husks are removed from the corn, so that the grain can be placed in an open crib for a period of 10 to 15 days where it will have access to plenty of light and air. This also operates to free the grain from the weevil, which can not withstand light, especially sunshine. After the corn is thoroughly dry, it should be placed in an air-tight crib and 4 pounds of carbon disulphid should be applied for each 1,000 cubic feet of space in the crib. If the shucks are not removed, the quantity should be doubled. The application should not be made on damp or rainy days, as too much moisture prevents speedy evaporation. A second fumigation should be performed within 25 to 30 days after the first. Ordinarily, two fumigations are sufficient to save the corn crop, although it is essential to watch the grain closely thereafter, and, if necessary, to make use of the carbon disulphid treatment a third time.

AID FOR PEAR GROWERS IN PACIFIC NORTHWEST

The culture of pears in the Pacific Northwest beyond the Cascade Mountains has suffered severe losses from time to time, and its development has been retarded by various insect pests, and by pear scab, a fungous disease, which are not sufficiently understood by the average orchardist. While the scab, to cite the most serious disease, is readily controlled by sprays, it annually causes a heavy loss because of inefficient spraying materials and carelessness as to the time or manner of application. The crop yield is frequently cut from 50 to 75 per cent, and unsprayed fruit is often so unsightly as to be almost worthless.

Though spring and summer spraying of pears for the control of scab has been generally practiced, the results, for the reasons indicated, have often been disappointing, especially when spraying has not included an insecticide for control of insects causing disfigurements that look very much like scab spots on mature pears. To enable the orchardist to recognize and distinguish between these troubles and to provide the proper measures of control, the United States Department of Agriculture has issued Farmers' Bulletin 1056, "Controlling Fungous and Insect Enemies of the Pear in the Humid Sections of the Pacific Northwest," which is for free distribution.

CONQUERING POTATO WART IN INFECTED REGIONS

Reports given at a recent conference of officials from West Virginia, Pennsylvania, and Maryland with the Federal Horticultural Board of the United States Department of Agriculture, called to consider the status of the potato wart disease, show that there has been only a slight spread of this recently discovered menace to the potato industry of America, and that by planting immune varieties further losses from the disease can be practically eliminated. The potato wart is one of the most destructive maladies attacking potato crops in Europe, and heretofore no means has been known for eradicating it from the soil, once a garden or a field becomes infected. Not only have the investigators for the United States Department of Agriculture found varieties of potatoes which are immune but they have devised a method of thoroughly disinfecting the soil by the use of steam and formaldehyde.

As a result of the conference in Washington, it is announced that the State authorities of West Virginia and Pennsylvania will take steps to assist gardeners in the infected regions in the purchase of varieties of seed known to be immune. It may be found advisable, also, to undertake the disinfection of a limited number of garden plots. As the cost of this work is approximately $1,000 an acre, the efforts along this line will be limited until the most effective and economical methods have been discovered.

MANY ROAD PROJECTS HAVE BEEN APPROVED

The record indicates that from July 1, 1918, to November 1, 1919, the United States Department of Agriculture approved 1,345 road projects, involving the improvement of 12,159 miles, at an estimated cost of approximately $181,143,644. Of this sum approximately $78,592,167 represents Federal funds. Since the passage of the Federal aid road act 1,927 projects have been approved. These call for the construction of 18,596 miles of road, at an estimated cost of $225,267,847, of which about $95,498,140 will be borne by the Federal Government. Gratifying progress also has been made in connection with the national-forest road work. From July 1, 1918, to November 1, 1919, 74 projects, involving 923 miles of road, were approved, and plans were completed for the improvement of 50 others, aggregating 946 miles.

These facts are brought out in the annual report of the Secretary of Agriculture.

TEACH MAKING OF SIMPLE HOME DEVICES

Many rural women have been in need of simple instructions in the making of household conveniences, labor-saving devices, and making of small articles for sale, in order to increase the family income. The instructions in rug making, making of baskets, brooms, etc., given to the girls by the home-demonstrations agents have also, at many places, been given to the women, resulting in the promotion of home industries and increased earnings. This added income has mainly been used to improve the home or to assist the war work. In several instances the women, who had saved enough from such earnings to purchase the needed furniture, have instead given it to the Red Cross.

Poultry Will Keep Better If Undrawn; Commercial Handling Often Contaminates

Undrawn poultry, contrary to the general impression, keeps better in cold storage and while passing through trade channels than does drawn poultry, say the specialists of the Bureau of Chemistry, United States Department of Agriculture, who have made extensive studies of the handling of poultry from the time it is killed to the time it reaches the consumer.

Careful observations of a large number of shipments of both drawn and undrawn poultry, made under commercial conditions, showed that the undrawn poultry reached the consumer with fewer bacteria and with less chemical change in composition than the drawn poultry. The shipments were accompanied by the scientists from the time the poultry was killed, while en route on trains, and until placed in the cold-storage warehouses, and after being taken out of cold storage were followed while being handled by the wholesalers, commission men, and the retail dealers. Recording thermometers accompanied the shipments through their entire course and the varying temperatures to which the shipments were subjected were recorded.

Much Drawn Poultry Spoiled

Samples were taken from the shipments at the time the poultry was killed, at the time it entered cold storage, at intervals while in storage, at the time they reached the commission men, again when the shipments reached the retailers, and finally when sold to the ultimate consumer. Bacteriological examination and chemical analyses were made of all the sample taken at the various stages. Changes as they developed were noted and studied. Comparisons were made of the samples taken from the undrawn poultry with samples taken from the drawn poultry. It was found that bacteriological and chemical indications of deterioration developed much quicker in the drawn poultry, and as the shipments progressed through the various steps of commercial handling, the difference in the signs of deterioration became more marked. By the time the shipments reached the consumer, much of the drawn poultry was unfit for food.

Contamination from Handling

The experiments revealed that the drawing of poultry as practiced commercially always resulted in the bird becoming contaminated with bacteria which caused spoilage. These bacteria multiply rapidly, and while their growth is checked by cold storage it is not entirely stopped. If it were practicable to draw poultry with the same precautions to avoid contamination that a surgeon uses in performing an operation—that is, with the use of sterile instruments and rubber gloves and under strictly scientific sanitary conditions, so that there would be no bacterial contamination in the process of drawing—the drawn poultry would be preferable to the undrawn. However, it is not practicable under ordinary commercial conditions to prevent some bacterial contamination in the drawing of poultry. To produce this result a trained bacteriologist and highly skilled workmen would be required in every poultry-killing establishment. The cost of such a process would be prohibitive.

It is the opinion of the specialists, therefore, that under usual commercial conditions undrawn poultry will keep much better than drawn poultry. The experiments upon which this conclusion is based were conducted several years ago, but continued observation of thousands of shipments of poultry under ordinary commercial conditions since then has served only to strengthen the opinion of the specialists who made the original experiments.

Merits of Horse and Tractor Among Studies Recommended

One of the chief means of effecting increased and more economic production on the farms of this country, and consequently of reducing high cost of living to a considerable degree, is a more efficient and complete utilization of farm power, according to the report of a special committee recently appointed by the Secretary of Agriculture. This report gives formal expression to the conclusions arrived at in a conference recently held in Chicago at the invitation of the Secretary. This gathering included representatives of farmers, horse breeders, tractor and implement manufacturers, saddlery manufacturers, feed producers, and workers from the farm management, animal husbandry, and agricultural engineering departments of agricultural colleges, as well as representatives of various divisions in the Federal department, including the Bureau of Animal Industry, the Rural Engineering Division of the Bureau of Public Roads, and the Office of Farm Management. Studies which should be made to show the relative merits of horses and tractors for use in various capacities on the farm was the central theme of discussion. The conference recommended that a series of studies and investigations relating to five principal subjects be undertaken under the auspices of the United States Department of Agriculture in cooperation with State agricultural colleges.

Under "farm power requirements" it was suggested that attention be given to the farmers' needs in various field operations, in hauling and in the operation of heavy belt-driven machinery, and in small power operations.

Under the topics "animal power" and "mechanical power" the recommended field of investigation includes a study of the preferable size of animal and mechanical power units, costs of maintenance, total utilization of power units, and the quality of work done by each.

Classed under the subject "relation of forms of farm power to man labor" the themes listed for consideration include seasonal demand for labor, the effect of time and weather limitations, the cost of man labor, the quality of work required, and so on.

The fifth topic, "influences (of various types of power units) on farm organization and operation," covers such items as the size of the farm, the size of fields, the topography of the farm, intensity of culture, and total farm profits.

The conference recommended that appropriations be made for these fundamental studies of farm-power problems, and that when such appropriations become available the investigations be planned by a committee of the ablest men available.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended December 6, 1919:

Address of D. F. Houston, Secretary of Agriculture, before the National Association of Commissioners of Agriculture, Auditorium Hotel, Chicago, Ill., November 11, 1919. Office of the Secretary. Circular 146.

Horticultural Exhibitions and Garden Competitions. Department Circular 62.

Mosaic of Sugar Cane and Other Grasses. (Professional Paper.) Department Bulletin 829.

Tuberculosis in Live Stock. Detection, Control, and Eradication. Farmers' Bulletin 1069.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Saving Eggs in Transit.

An egg broken accidentally before it leaves the farm usually goes on the farm table, and nothing is lost. Eggs broken at the grocery may be disposed of at reduced prices as cracked eggs and little actual food loss results. But the egg broken after it is packed for shipment is likely to be a thoroughly bad egg before it arrives at its destination and become a total loss. With eggs selling at record prices, it is a matter of importance that a smaller proportion of eggs than ever before are broken in transit. This result was brought about by the cooperative efforts of the United States Department of Agriculture and the United States Railroad Administration. Employees of the Railroad Administration were detailed to the Bureau of Chemistry, Department of Agriculture, where they received instruction in proper methods of loading and stowing eggs in freight cars. Wherever cars were received at terminals in a badly damaged condition, these employees of the Railroad Administration paid personal visits to the shippers for the purpose of instructing them how properly to load cars to avoid damage in future shipments. The result, according to the report of the chief of the Bureau of Chemistry, is a material diminution in the breakage of eggs during transportation.

Moth Quarantine Decreased.

After years of warfare against the gipsy moth and the brown-tail moth, the United States Department of Agriculture, through the Bureau of Entomology, reports a substantial decrease in the infested territory. The reduction amounts to 1,824 square miles previously infested with the gipsy moth and 5,385 miles with the brown-tail moth. Twenty-eight towns in New Hampshire, 6 in Vermont, 8 in Massachusetts, and 10 in Connecticut, 52 towns in all, were found to be free from gipsy moth infestation and were eliminated from the quarantine area. There is now under quarantine on account of the gipsy moth 20,747 square miles in New England.

Isolated colonies of the gipsy moth found in previous years in New York, Ohio, New Jersey and the western part of Massachusetts were again carefully examined but no infestation was found. There seems to be no reasonable doubt, reports the chief of the Bureau of Entomology, that the insect has been exterminated in these colonies. The decrease in area infested with the brown-tail moth includes 34 towns in Maine, 58 in New Hampshire, 6 in Vermont, 37 in Massachusetts, and 10 in Connecticut, a total of 145 towns. There remains under quarantine on account of this insect an area of 28,752 square miles.

Fight on Wheat Smut Grows.

That farmers are tremendously in earnest in their desire to drive out wheat smut is shown by the big increase in the sales of formaldehyde which have been made in four States where the United States Department of Agriculture, in cooperation with the extension departments of the State agricultural colleges, has been carrying on campaigns of education to demonstrate the proper use of formaldehyde in treating wheat for this disease. Reports from these States show that the increase in the sales of formadehyde for the current year varies from 150 to 325 per cent, as compared with the sales of 1917, the last year before the present campaign was inaugurated. The four States in which this record has been made are Minnesota, North Dakota, South Dakota, and Montana. There is every reason to believe that practically all of this increase represents supplies used in fighting smut.

Carburetor and Chromosome.

"There are a thousand men who know a carburetor to every one who knows a chromosome," says a specialist of the United States Department of Agriculture in discussing the fact that mechanics as a science has always received a great deal more attention than genetics as a science. Still, to the layman, both the carburetor and the chromosome are, in what used to be the nomenclature of psychology, "mysterious somewhats." The great majority of people could not even stagger at a definition of either of them. A respectable number would know, dimly, that the carburetor makes possible the propulsive explosion in gasoline engines, but comparatively few know that the chromosome makes possible the transmission of some particular characteristic from parent to offspring.

"Opportunities were plentiful," says the specialist in explaining why so many more people have given their best thought to mechanics than to genetics. Yet, another explanation may be that genetics takes care of itself—not in the best way, possibly, but in some way—while mechanics always has to be taken care of by man. The chromosome makes its own adjustments while the carburetor must be adjusted by the hand of the operator. Man had to develop mechanics. He could let genetics rock along. There would always be some kind of pigs and calves and lambs. There would always be no kind of plow or wagon or well bucket, unless he made it. And, having to make something, he strove to make the best. If he—meaning the average man—ever is persuaded that he must give his live stock the closer attention it deserves, he will strive to make the best in that line, too. That is why movements like the "Better Sires—Better Stock" crusade are necessary and why their results may be so important. Man often has to be induced to do the thing that otherwise will take care of itself fairly well, but the results of which can be improved by study and thoughtful attention.

Scrub Purebreds Counted.

Of particular interest in a live-stock survey recently completed in South Dakota are figures on the quality of purebred sires, as well as on the number of scrubs and grades in that region. Fourteen counties typical of live-stock conditions in the State were included in the survey. Of the sires in herds of cattle 65 per cent were grades or scrubs, and about 25 per cent of the purebred sires were classed as inferior, according to a part of the reports. This is the first count of a scrub purebreds, over a considerable area, received by the United States Department of Agriculture.

It was found that when purebred sires were used, the average herd of 20 grade cows returned $540 more profit during 1918 than when grade or scrub sires were used. It has been estimated that the elimination of inferior purebred sires would increase the average profit in each herd from $540 to $800 annually.

Ton of Butter a Minute.

The butter industry of the United States is so large that more than a ton of butter was made for every minute, day and night, last year, according to dairy specialists of the United States Depart-

ment of Agriculture. Yet even this enormous production scarcely meets domestic needs.

The output of factory butter has increased approximately 200,000,000 pounds each 10 years since 1880. Farm butter-making reached its maximum production about 1900. The present trend indicates that it will become a less and less important factor in the Nation's butter supply, being superseded by the factory product. Production of factory butter in the United States shows a more rapid general upward trend than is observed in any foreign country from which dependable butter figures have been obtained. The number of such countries, however, is relatively small. Production of renovated butter in the United States is declining. This condition evidently results from reduced supplies of low-quality farm butter, the chief product from which renovated butter is made.

Cereal Weights Below Normal.

Figures recently obtained by the crop reporting specialists of the United States Department of Agriculture indicate how plant diseases, adverse weather conditions, and the like reduce crop yields to a greater degree than is shown in bushels or other units of measure. Wheat of the 1919 crop has an average weight per measured bushel of 55.5, which is 4.5 pounds below the standard weight. This is the lowest weight since 1904. The average weight per bushel of oats of the 1919 crop is 31.1 pounds, nearly 1 pound below the standard of 32 pounds, the lowest since 1908. Barley averages 45.2 pounds instead of 48, the standard. The only other time during the past 10 years when the average weight of a measured bushel of barley was so low was 1916. The bulk of these three crops was harvested at about the same time and all of them were affected by diseases and, in many sections, by excess moisture and other adverse conditions.

To Improve Butter Shipments.

Some of the defects noted by butter inspectors of the U. S. Department of Agriculture are: Old-cream flavor, wavy or mottled appearance, too much salt, and leakiness in the butter. These defects are reported to the shipper when the inspection certificate is sent him, so that he may know why his butter scores low and may remedy the defects.

The use of churn numbers, so that the receivers can more readily sort out separate churnings, is urged by food-product inspectors of the Bureau of Markets, United States Department of Agriculture. In one lot of butter, for example, the score varied from 88 to 92. As no churn numbers were shown, the only way the receiver could separate the butter was by examining every tub. If churn numbers had been shown, it would have been a simple matter to separate the various churnings and sell them according to score.

It is not possible to take time to examine every tub, so the butter is sold according to the samples taken, and at a discount if the samples vary much. If there should happen to be just one poor tub in the shipment and the sampler found it, the whole shipment would suffer; while if churn numbers were used, only the tubs in that churning would receive the lower score.

Farming Schools in Europe.

Something of the character of reconstruction work going on in agricultural districts of Italy can be gained from data recently compiled by the States Relations Service of the United States Department of Agriculture concerning the itinerant agricultural instruction of that country. According to the latest statistics the farmers of Italy have had the benefit of instruction from 278 agricultural professors who travel through the country giving short courses, which are both theoretical and practical in character. The cost of this work is approximately $400,000 a year. This expense is shared by the State, the province, and some local organization. Thirty-eight of these itinerant professors specialize in such subjects as cheese making, silkworm raising, mulberry culture, viticulture, fruit culture, and plant diseases. Since the close of the war many courses have been conducted in farm mechanics to instruct farm laborers in the use and repair of farm machinery. Courses in farm bookkeeping for young men and women have also been contemplated.

Scope of Food and Drugs Act.

The Federal Food and Drugs Act does not apply, as many people suppose, to foods and drugs which are manufactured and produced in one State and not thereafter shipped outside of that State, that is, that are consumed within the State where produced. Such foods and drugs are subject to State laws.

The provisions of the Federal Food and Drugs Act do apply to the foods and drugs which (1) are shipped or delivered for shipment from any State or Territory or the District of Columbia into any other State or Territory or the District of Columbia; (2) are shipped or delivered for shipment from any State or Territory or the District of Columbia to any foreign country; (3) are being imported into the United States; or (4) are manufactured, sold, or offered for sale in the District of Columbia or any Territory of the United States.

The words "food" and "drug" as defined in the Federal Food and Drugs Act have a somewhat different meaning from the popular understanding of those terms. For instance, water under the Food and Drugs Act is classed as food. The term "food" includes all articles used for food, drink, confectionery, or condiment by man or other animals, whether simple, mixed, or compound. The term "drug" includes all medicines and preparations recognized in the United States Pharmacopoeia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation, or prevention of disease of either man or other animals.

Wins Many Prizes With Her Bread.

Many a girl who can make delicious fudge, "heavenly" devil's food and Welsh rarebit which will melt in your mouth can not make a loaf of bread that would tempt any but the starving. The clubs for girls organized by the United States Department of Agriculture and the State colleges emphasize bread making. Club girls are taught not only how to make a loaf pleasing to the palate and the eye, but many of them are taught to teach others and how to judge their own and others' bread by a standard score card.

Bread club girls compete with each other at local county and State fairs. They also often enter the open classes at fairs and compete with the older women. A Jones County (Miss.) club girl did so last fall, and her bread won $16 and a barrel of flour. She won the first prize on bread, a barrel of flour; first, $5 in cash, on biscuit; $10 sweepstakes, and $1 for second prize on muffins.

Controlling Hydrophobia.

There is nothing, perhaps, that strikes deeper terror to the hearts of people, young and old, than the thought of being bitten by a mad dog. Most persons, fortunately, have known of such occurrences only by hearsay, but the situation might have been vastly different by this time if something very effective had not been done about it. There are, indeed, large sections of the country where rabies is not an unfamiliar affliction. There was an outbreak in Nevada in 1915 in which half a million dollars worth of live stock was lost by being bitten by rabid animals. Some ranches lost from 200 to 400 head of cattle. A great many per-

sons were bitten and not a few of them died.

Such outbreaks have been localized, but they might have become general—at least throughout the range States of the West. Rabies has been prevalent for years among wild animals in California, Idaho, Nevada, Oregon, Washington, and Utah. The disease is communicated from them to domesticated animals, including the dogs and cats that are familiar pets in households. The disease might easily become widespread. But the United States Department of Agriculture uses, every year, a large part of the money available for predatory animal control in combating rabies. Although the disease still maintains a foothold in all the States named, efforts in suppressing its carriers have been so successful that its spread to other States has been prevented and the number of domestic animals and persons bitten by rabid wild animals has steadily decreased until the number is now very small. When an outbreak occurs in any district, the hunters employed by the Bureau of Biological Survey are concentrated there and the wild animals carrying the rabies are summarily destroyed.

"Without Federal intervention for the suppression of rabies," reports the chief of the Bureau of Biological Survey, "the ravages brought about by it would have been vastly increased. Furthermore, it should be borne in mind that, with the disease still persistent in scattered localities throughout the territory where it was once generally prevalent, the removal of organized preventive measures would at once result in its renewal and spread."

Two-Story Milk Plant Popular.

A recent survey of more than 100 milk plants, made by the Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture, shows that for establishments handling more than 1,000 and less than 5,000 gallons of milk daily, the typical structure is two stories high, where less than 1,000 gallons of milk are handled daily, the plants are usually housed in one-story buildings. Although there are a few plants of three or more stories this record would seem to indicate that fewer stories prove more satisfactory in most cases. One of the most noteworthy disadvantages of a milk plant having several stories is the increasing quantity of labor needed, in porportion to the size of the business.

MOSAIC DISEASE SHOWN ON MAPS

The location of areas infected with the mosaic disease of sugar cane, a new disease introduced into the United States only within the last few years and discovered for the first time in July of this year, is shown in maps which have been published for the benefit of sugar-cane interests by the United States Department of Agriculture. These, together with colored plates showing the detailed appearance of diseased cane as compared with healthy cane, are features of a department bulletin, "Mosaic Disease of Sugar Cane and Other Grasses," which will be supplied free on application to the United States Department of Agriculture. Anyone interested can secure information regarding the disease either by writing to the department, or by consulting his county agricultural agent.

High Efficiency Shown by Experiment in Growing Forage Crops for Sheep

The old dictum of making two blades of grass prosper where one formerly succumbed has been applied to sheep farming in an experiment conducted by specialists of the United States Department of Agriculture. A field of 30 acres has been used exclusively during the past four seasons, for producing forage crops to be harvested by sheep. The field is divided into 10 plats, and during the recent season every portion grew at least two different crops, while on some of the unit areas three crops were grown and grazed.

Oats and Peas Follow Wheat

Fall-sown wheat provided the earliest available pasturage in the spring, and after this was exhausted the sheep were shifted to an early spring sowing of oats and peas. Thence they moved to another tract of oats and peas, where they grazed luxuriantly and well until the supply of green stuff was curtailed, when they were transferred to alfalfa and rape pasturage. This medley mixture of green feed furnished good grazing until about the middle of July, when the soy beans were available for pasture purposes.

As a consequence of the intensive utlization of pasture crops for mutton and wool production, this field of 30 acres furnished sufficient feed for 70 ewes and 60 lambs for a 200-day period. The best grazing resulted from a patch of three acres of soy beans, which carried 60 sheep for 30 days with satisfactory results. The system of management followed was to move the lambs and, as far as possible, the old ewes at regular intervals of not less than two weeks from one patch of green feed to another. This practice of moving the sheep frequently to fresh ground, as well as the plan of plowing the land for the subsequent crop, eliminated the danger of loss from stomach worms.

Although the system requires some extra preparation of the land and seeding, as well as shifting of the sheep from one plat to another and providing plenty of water for the mutton makers, it nevertheless, is believed worthy of trial, especially in sections of high-priced farming land where a maximum return must be realized from every acre used.

The Results Applied

On the basis of the results in this experiment a flock of 200 breeding ewes would require 80 acres of forage crops. It would require the services of two men and one team to produce 80 acres of forage crops, in addition to caring for the sheep. Winter feed for such a flock, together with that for work horses, would require 35 acres of similar land, making a total of 115 acres of farm land necessary for the maintenance of a 200-ewe flock under this system. On the basis of the 1919 market prices, the gross income from a reasonably well-managed ewe flock handled in this way would be about $3,000. This figure represents the return of the ewes on 115 acres of land and a year's work of two men and four horses.

There would be a higher expense for seed than in ordinary farming, but the amount of labor required and its distribution throughout the year would afford a very marked advantage in favor of sheep farming as compared with other agricultural activities producing an equal revenue.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for scientific assistant, for both men and women, on January 7 and 8, 1920, to fill vacancies in the Department of Agriculture, for duty in Washington, D. C., or in the field. The usual entrance salary for this position ranges from $1,320 to $1,620 a year, but persons showing in their examinations that they are unusually qualified are occasionally appointed at higher salaries, not to exceed $1,860 a year. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

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FERTILIZER CONTAINING BORAX REQUIRES CARE IN ITS USE

Apparent Limits of Safety Determined by Investigations

Comprehensive Survey Expected to Determine Whether Commercial Grades Carry Injurious Amounts

The United States Department of Agriculture issues the following statement:

The disastrous results experienced in 1919 by farmers in some sections of the country, where fertilizers containing borax were unwittingly applied, has aroused apprehension that the experience may be repeated in the spring of 1920. This substance, which is highly toxic to crop plants, is not known to have been present in appreciable quantities in the materials commercially available for fertilizer uses prior to the war.

The scarcity of potash during the war, which still continues to a considerable extent, brought into use a product, derived from at least two new sources, which carried enough borax to be harmful to crops if applied in the usual quantities by the methods generally practiced. If there were available sufficient supplies of noncontaminated material to meet the agricultural needs of the country, it would probably be safer for farmers to reject all fertilizers containing appreciable amounts of borax, except in those cases where the applications are relatively light and can be broadcasted or very thoroughly mixed with the soil.

It appears, however, that a large proportion of the potash salts available for fertilizer use in the spring of 1920 contains more or less borax. Recently, also, it has been discovered that nitrate of soda as imported contains some borax.

Experiments Conducted

As these conditions have become known, the United States Department of Agriculture and some of the State experiment stations have been actively studying the subject and conducting experiments with a view to determine the extent to which fertilizers containing borax may safely be applied. While the observations and tests of a single season can not be regarded as final, it appears to be well established that, under intensive use, where the fertilizer is put in the row or hill and the seeds or plants are brought into virtual contact with it, about 2 pounds per acre of anhydrous borax marks the limit of safety. Where it is broadcasted or thoroughly mixed with the soil, 10 pounds of anhydrous borax per acre may be regarded as within the limit of safety.

The department is now making a very comprehensive survey of all the ordinary fertilizer materials with a view to ascertain whether any of the commercial grades carry injurious amounts of borax or whether mixtures of any two or more of these materials will give rise to excessive quantities of borax in mixed fertilizers.

In the meantime, and while these investigations are proceeding, in order to protect the people of the United States and to conserve the food supply, the department, on October 24, 1919, addressed a letter to all brokers, fertilizer manufacturers, and dry mixers, who are under license under the control act of Au-

(Continued on page 5.)

CROPS' VALUE ALMOST TRIPLED

But That Does Not Mean That Nation's Real Wealth Has Advanced in That Proportion

The value of crops produced in the United States this year is nearly three times greater than the average annual value during the five years preceding the outbreak of the European war, according to the report of the Secretary of Agriculture. "On the basis of prices that have recently prevailed," says the Secretary, "the total value of all crops produced in 1919 is $15,873,000,00, compared with $14,222,000,000 for 1918; $13,479,000,000 for 1917; $9,054,000,000 for 1916; $6,112,000,000 for 1914; and $5,829,000,000 for the five-year average, 1910–1914. These values represent gross production and not net returns to the producer. The value of live stock on farms in 1919 was $8,830,000,000, com-

(Continued on page 5.)

ACCURATE, FULL STATISTICS NEEDED FOR GOOD FARMING

Secretary of Agriculture Urges Execution of Program

Figures Compiled by Bureau of Crop Estimates of Importance to Every Person in Contact with Rural Life

Did you ever stop to think how many classes of people are benefited by dependable information on acreage, crop yield, number of live stock, farm surpluses, and the like? Such estimates of course, are of tremendous importance to the millions of people who are interested in rural life, and especially those who, through legislative and administrative processes, are charged with the respsonsibility of aiding development of agricultural industry. They are of great importance, also, to county agents and other extension workers. But they are equally important to manufacturers and business men who supply farmers with equipment and machinery, to banks that furnish funds for financing crop production and movement, and to transportation companies for supplying cars when and where needed to move crops.

David F. Houston, Secretary of Agriculture, calls attention to this fact in that portion of his annual report, in which he urges increased appropriations for the expansion of the work of the Bureau of Crop Estimates.

Time for Work on County Basis

"The time has arrived," says the Secretary, "for placing the work in all the States on a county basis. It is important that the live stock and feed reporting service be enlarged, that farm surpluses be ascertained, and that information regarding foreign-crop and live-stock production be more fully secured and reported. It is peculiarly urgent that this be done at this time. The new census is about to be taken. It will furnish new base lines, and the department should be in a position, by reason of an improved service, to supply the country

each year after the census with as full and accurate data as possible."

Enlarged Field Force

If the enlarged program is approved, the Secretary says, the field force of the bureau will be strengthened by placing an assistant field agent and a clerk in each State. Additional specialists, also, will be appointed to collect, interpret, and present information regarding special crops and classes of live stock.

"The bureau then will be in a position to report for the Nation as a whole, for each State, and for each county, monthly or oftener if necessary, acreages to be planted; surpluses or deficiencies of seed, fertilizer, labor, and farm machinery; acreages actually planted; progress of farm work; acreages abandoned and harvested; damage from weather conditions, insects, and plant diseases; condition of crops and forecasts of production; yields per acre and production at or near harvest; acreages and yields of principal varieties of each crop; disposition and utilization of the crops produced; marketable surpluses and stocks on farms; prices received by farmers as distinguished from market quotations; prices farmers pay for supplies, machinery, and equipment; hours and wages of farm labor; and the foreign situation. These reports will cover about 70 crops, including such special items as vegetables, nuts, fruits, seed, oils, forest products, and nursery stock for all which adequate reports have not been available, except in the census years.

Live Stock to Be Included

"Likewise, there will be given the number of horses, mules, dairy cattle, beef cattle, swine, sheep, goats, and poultry, by age and sex classifications corresponding with the census enumeration of January, 1920; of pure-bred animals of each kind; of those bred, born, or brought onto the farm; of those sold, slaughtered, or lost through disease, exposure, or other causes; of those remaining on hand and on feed; the condition of the various classes of animals; farm prices; and the feed situation, including the carrying capacity of pastures and ranges, the number of silos, the quantity of silage and other forage available, as well as the domestic meat, dairy, poultry, wool, and hide production, and the foreign situation.

"Available foreign crop and live-stock estimates will be secured and published, especially for countries of deficient supply and those of surplus production in competition with the United States, and periodical world balance sheets will be prepared, showing for the principal countries of the world the production requirements, imports, exports, and net deficiencies or surpluses of the major crops and classes of live stock.

"It is proposed to establish intimate cooperative relations with State departments of agriculture and State assessors. In this way greater accuracy will be secured and the aggregate expense to the States and the Nation reduced. As the value of reports depends not only on their completeness and accuracy but also on their quick availability, they will be issued very promptly and more frequently, summaries will be released on dates of issuance, and the Crop Reporter will be changed from a monthly to a weekly basis.

County Estimates Important

"It need scarcely be pointed out that county estimates are of great importance to the work of the county agents and the extension service in each State to manufacturers and business men who supply farmers with equipment and machinery, to banks which furnish funds for financing crop production and movements, and to transportation companies for supplying cars when and where needed to move crops. They have already been made in a number of States. Preliminary estimates of acreages intended to be planted will enable farmers to determine whether their plans should be modified. Estimates of surpluses or deficiencies in the supplies of seed, fertilizers, and farm help tend to equalize both distribution and prices and to insure adequate farm production. Estimates of acreage, yield per acre, and production of each principal variety of a given crop, in addition to total production of the entire crop, will show the relative adaptability and productivity of varieties, and therefore will be of assistance not only to farmers but also to seedsmen and to crop specialists and plant breeders of the State experiment stations and of the Federal Department of Agriculture. Those of crop damage by counties from insect pests and plant diseases will enable the entomologists and plant pathologists to work more intelligently in developing and applying remedies. Those of marketable surpluses on farms, or the portion of the crop sold from the farm and entering the channels of trade, will facilitate the satisfactory marketing and distribution of surplus production. Such estimates have been made for apples, peaches, potatoes, and truck crops, and they were promptly and effectively utilized by growers and marketing agencies.

"Perhaps the most important feature of the enlarged program is that relating to live stock, which represents not only a farm investment of more than $10,000,000,000 but also constitutes the meat supply of the Nation, a considerable portion of the export trade, a very important factor of successful farm management and economy, and 50 per cent of all farm sales. Yet for this important industry the bureau, with its inadequate facilities, has been able to estimate, once a year, only the gross number of animals on farms, the number of brood sows, and the total losses from disease and exposure. No attempt has been made in the past to estimate dairy and poultry production between censuses, the annual value of which amounts to approximately $3,000,000,000. The great losses occurring yearly from drought and feed shortage in portions of the Great Plains and in limited areas of other sections might, to a considerable extent, be reduced by having definite and detailed information regarding the feed situation.

"The expenditure of money for the execution of this program will clearly be an investment, which should be made without delay in order that agricultural and business interests may have the benefit of the improved service during the period of readjustment. It should be borne in mind also that the proposals are in no sense experimental. Their feasibility and practical value have been fully demonstrated."

JAPANESE FORAGE INTRODUCED

Kudzu, a native forage crop of Japan, has been successfully introduced into the United States, and according to specialists of the United States Department of Agriculture, it is a forage which merits extensive use on the heavy clay hillsides and otherwise neglected land of the Southern States. Kudzu prospers in the eastern part of the United States, particularly southward, attaining luxurious growth where the summers are warm and moist. It is largely used for ornamental purposes in most of the Southern States, the decorative vines often climbing to a height of 60 feet or more.

The Japanese utilize kudzu on rough, rocky hillsides which are too steep to be cultivated, the fiber of the stems being used to make "grass cloth," an article of commerce, while portmanteaus are also also manufactured from this fiber. The kudzu roots are rich in starch, which is used extensively in making cakes and noodles. They also make hay from the kudzu vine, it being a great delicacy for sick horses, as they will eat the kudzu readily when they refuse other feed.

Fields in northern Florida, when well established, have yielded three cuttings of hay a season and as high as 10 tons an acre. Under favorable conditions kudzu is a profitable crop, notwithstanding the fact that its perennial nature does not permit of its being used in rotation.

Bulbs May Be Grown Over Very Wide Area; New Conditions Gain Industry Attention

The United States uses every year, in normal times, about $2,000,000 worth of bulbs and has produced hardly $25,000 worth of Dutch bulbs in any one year—this despite the fact that few plants are more widely adapted and few crops more easily grown than bulbs.

The reason for this situation, says the United States Department of Agriculture, is that it has always been thought that the bulbs could be bought cheaper than they could be grown. In the future, however, conditions are going to be different, and the department has published Bulletin No. 797, "Commercial Dutch-Bulb Culture in the United States." This 50-page discussion of the subject is available for limited distribution to interested persons.

Thus far, says the bulletin, commercial production of Dutch bulbs in this country has been confined to the Atlantic and Pacific seaboards, north of Norfolk and San Francisco, respectively. Good bulbs have been produced in both regions. The western area is confined to a rather narrow strip which receives suitable rainfall and is sufficiently affected by seacoast conditions to prevent rapid transition from winter to summer. Heat and moisture conditions are not so sharply defined in the East, and the bulb area is much more indefinite as to width.

Succeed Under Many Conditions

In the interior, in the Ohio and Mississippi Valleys, small quantities of tulip and narcissus bulbs have been grown sufficently long to show the possibility of the successful production of many varieties.

Some of the hardier and more robust of the narcissus varieties thrive well and naturalize even in the Gulf States, but this region is best adapted to the so-called South France stocks. The growing of tulips and Dutch hyacinths probably should not be attempted there.

Contrary to what would be generally supposed, it is not too cold for tulips and narcissi to succeed as far north as Sitka, Alaska. They thrive well along the entire northern border of the United States wherever the moisture conditions are suitable.

Thus it will be seen that these stocks succeed under a great diversity of conditions. Indeed, they seem to be as adaptable as ordinary cultivated crops.

The successes with the three main groups of these bulbs on the northern Pacific coast; the large production of a long list of narcissus varieties in southern Illinois and Virginia; the culture of Darwin and other tulips in Michigan, northern New York, Ontario, and Virginia; and the admirable hyacinth bulbs often produced in private gardens throughout the region south of New York, under conditions of comparative neglect and a large measure of ignorance of their life history, would seem to prove sufficiently that we have an abundant territory adapted to growing these stocks.

Not Confined to Sandy Soil

"The culture of bulbs," continues the bulletin, "is associated in the public mind with sandy soil, and the preponderance of advice as to their handling specifies sandy soils as preferable to any other. Periodical literature especially is full of reference to the so-called 'sand-dune bulb fields' of the Netherlands. Abundant evidence is at hand to show that purchasers of bulbs have good success in flowering them on almost any soil which is available, and though this is a very different matter from producing the bulbs with flowers in them it is nevertheless a proof of the wide adaptability of these stocks.

"In the experiments at Bellingham, Wash., thus far, better tulips and better narcissus bulbs have been produced on silty soil than upon the lighter sandy soils. The trials with hyacinths are not decisive; indeed, other factors may account for the results. Proper fertility has not always been maintained, and the heavier soils are less exhausted by long cropping. While this may be true, the fact stands out prominently that the production of tulip, narcissus, and even hyacinth bulbs of good quality can be accomplished on silt-loam soils underlain by clay at a depth of 16 inches. On the other hand, it should be realized that the ability to produce bulbs at a profit will be the controlling factor, and the expense is much less on light than on heavy soils.

"When all is said, few plants are more widely adaptable and few crops more easily grown than bulbs. The regions in this country are few and small, indeed, where some varieties of each of the three groups are not successful when grown for ornamentation, and the possibility of the production of bulb crops is promising. The flowering of the bulbs, as we know, is accomplished in a great variety of media, almost anything, from water to ordinary loam soils, answering the purpose provided the atmospheric conditions are suitable.

"Mechanics probably has more to do with the suitability of sandy soil than any inherent preference of the bulbs for sand rather than for heavier loam. It is possible that it will be cheaper to add heavy applications of fertilizer than to handle the bulbs in heavy soils. On the other hand, many varieties will coat up better on light than on heavy soils. The character of the bulbs grown on heavy and on light soils will vary somewhat, as it will with shallow and deep planting. The indications are, however, that success can be attained in bulb production on a friable loam soil, whether it has a preponderance of sand in its composition or not."

Other Phases Discussed

Other phases of the subject discussed in the bulletin include temperature, soil and fertility requirements, number of bulbs grown per acre, planting, depth of planting, treatment after flowering, roguing, harvesting the flowers, cultivation, harvesting the bulbs, storing and curing, cleaning, sizing and advantages to be gained by it, culling, propagation, determination of flowering quality, packing, shipping, bulb growing for pleasure, out-of-door culture, indoor culture, miscellaneous bulbs, insect pests, fire disease of the tulip, diseases of hyacinths, the mosaic disease, best varieties of hyacinth to plant, varieties of narcissi, varieties of tulips, and varieties of hyacinths.

The sources from which interested persons may obtain bulb literature are given, and the bulletin ends with several pages of definitions of terms, strange to the unitiated, that are likely to be found in bulb literature and catalogues.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended December 13, 1919:

The Bean Ladybird and its Control. Farmers' Bulletin 1074.

Peaches: Production Estimates and Important Commercial Districts and Varieties. Department Bulletin 806.

A System of Bookkeeping for Grain Elevators. Department Bulletin 811.

Poultry Houses. Department Circular 19.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

PEAK OF ACREAGE EFFORT REACHED IN U. S. IN 1918

The farmers of the United States, in 1919, had 1,772,000 acres more under cultivation than they had in 1918, and the 1918 acreage was 18,764,000 acres above that of 1916, the year before the United States entered the war. The 1919 acreage, therefore, was 20,536,000 acres above the acreage of the last prewar year. The whole gain of 1919, however, is to be credited to winter wheat, sown mostly before the signing of the armistice. This crop alone gained 12,229,000 acres over 1918. The 1919 acreage in crops other than winter wheat, therefore, was about 10,500,000 acres less than in 1918, according to statistics gathered by the crop-reporting specialists of the United States Department of Agriculture.

The peak of acreage effort, therefore, was reached in 1918, the last year of the war, when farmers cultivated 18,764,000 acres more of principal crops than they did the year before the United States entered the war. In the meantime army, navy, and war industry took a large fraction of the former farm labor, so that there could have been no annual increase of acreage under former conditions. The loss of labor, unless new methods had been adopted, would have reduced the cultivated area greatly. Notwithstanding this great handicap, farmers in the two war years increased their area under principal crops seven and a half times the average yearly increase of the preceding five years, and the increase in acreage was greater in the second year than in the first.

According to the figures of the Bureau of Crop Estimates, the cultivated area was 314,524,000 in 1911, and 327,195,000 in 1916, an average gain of 2,534,000 acres a year. The total went up to 335,668,000 in 1917, a gain of 8,473,000; to 345,959,000 in 1918, a gain of 10,291,000 acres over 1917 and 18,764,000 acres over 1916; to 347,731,000 acres in 1919, a gain of 1,772,000 over 1918.

ART OF JUDGING STOCK EXPLAINED IN BULLETIN

The art of judging is the foundation of all beef-cattle shows and is also largely the means of determining the value of cattle offered in public sales, says Farmers' Bulletin No. 1068, "Judging Beef Cattle," recently issued by the United States Department of Agriculture. Each breeder, therefore, to attain success in his line must be a good judge, so that he can select and mate individuals to get the best possible offspring. A thorough knowledge of judging feeders, for example, is important, since profit in cattle feeding usually depends upon buying animals of the right type.

Without definite standards, stock judging can not be successful. The ideal beef type in the fat animal, to cite another example, consists in a low-set body which is broad, deep and smooth, with straight lines and with a thick, even covering of firm flesh. In addition to this general beef form, good quality indicated by the hair, hide, and bone, together with general character and style, are important, because they are an index to the quality of the meat.

The bulletin mentioned takes up in detail various phases of judging, together with an easily understood discussion of the various types of animals and the method of scoring them. It may be had free on application.

BOMBS IMPRACTICAL FOR FIGHTING FOREST FIRES

Ingenious, imaginative persons have recently proposed as a method of fighting forest fires that gas bombs be dropped from airplanes. Officials of the Forest Service, United States Department of Agriculture, say that this suggestion is entirely impractical. There is no analogy between the suggested method and the use of poison gas bombs in fighting, because a fire can not be "poisoned" but must be smothered. Although one part of a poison gas to one million parts of air might be sufficient to kill soldiers, yet 750,000 parts of inert gas to a million parts of air probably would not suffice to put out a fire.

The only kind of a gas which will assist in stopping a fire, forest officials declare, is an inert gas that will neither burn nor support combustion, such as nitrogen or carbon dioxide.

From the standpoint of cheapness and ease in handling, carbon dioxide would probably be the most promising gas, were gas bombs to be experimented with in forest-fire fighting. However, as soon as an attempt is made to work out practical plans for such an undertaking, difficulties become apparent. If an airplane carrying 500 pounds of gas bombs containing 300 pounds of carbon dioxide succeeded in dropping the bombs exactly on a fire covering some 700 square feet, and if the gas liberated did not escape outside this area or rise more than 10 feet above the ground, still such an attack would be far from effective. The 300 pounds of gas would be equal, in volume, to about 3,000 cubic feet, and so the atmosphere surrounding the fire would be about 43 per cent carbon dioxide and 57 per cent ordinary air. Since the air contains 21 per cent oxygen, this mixture would contain 21 per cent of 57, or 12 per cent oxygen—enough to support combustion. From such facts Forest Service officials believe that effective use of gas bombs for fire fighting in forests is entirely out of the question.

WHAT WASHES OUT OF SOIL?

When water percolates through earth, what does it carry out of the earth with it? That question, no doubt, was asked many thousands of years ago and has been repeated from time to time ever since, but it has never been completely answered. The answer, however, is being written bit by bit. The chemical and mineralogical nature of the materials extracted from soils by treatment with water has been under investigation by the Bureau of Soils, U. S. Department of Agriculture, for some time past. A number of minerals have been identified in these products and it has been shown that the evaporated water-extract of soils leaves a residue showing considerable resemblance to the Stassfurt and other natural saline deposits. A material, provisionally called ultra clay, which consists of particles so fine they remain in practically permanent suspension, has also been obtained by these extractions and its properties are now under investigation. This ultra clay contains a much larger proportion of soluble salts than the soil from which it has been separated. A very significant attribute of ultra clay is its high absorptive power for potash. Soils containing a large proportion of ultra clay erode easily.

FERTILIZER CONTAINING BORAX REQUIRES CARE IN ITS USE

(*Continued from page 1.*)

gust 10, 1917, stating that the department would not permit more than 2 pounds per ton of anhydrous borax in mixed fertilizers, unless the presence of an excess of this amount is plainly indicated on the container. It was further stated that the purpose of this regulation was to insure that no fertilizer application which would add more than 2 pounds of borax to the acre would be made by farmers without their knowledge.

The Secretary of Agriculture, on December 6, 1919, issued a formal order prohibiting the sale of mixed fertilizer containing borax in excess of one-tenth of 1 per cent, unless the containers are so labeled as to show the percentage of borax present.

Observing Safety Limit

This action was designed to protect the farmer in the use of as much as a ton of fertilizer per acre, applied in the drill, or to give him notice that the material contained borax. If the fertilizer contains more than 2 pounds of borax per ton, it is thought that it may be safely used, provided proper attention is given to the method of application and the amount applied per acre. If it contains 0.2 per cent of borax, 1,000 pounds per acre may be used in the drill without exceeding the 2 pounds per acre, the indicated limit of tolerance. If it contains 0.4 per cent, 500 pounds in the drill would not exceed the apparent limit of safety.

If, on the other hand, the fertilizer is broadcasted and contains 0.5 per cent of borax, then a ton may be applied broadcast without exceeding the limit of 10 pounds per acre of anhydrous borax, the indicated limit of safety for this mode of application. If it contains 1 per cent of borax, then an application of 1,000 pounds per acre broadcast could be made without exceeding the indicated limit of safety for this method.

It is expected that, since the producers of raw fertilizer materials have been advised of the vital importance of this matter, they will hereafter pay the strictest attention to the method of preparing the materials and to the purification of them, so far as possible, through the elimination of borax. It is also evident that the manufacturers, for their own protection, will buy materials for their different grades of fertilizers on the basis of their borax content, as they now do for the fertilizer constituents of which their different brands are composed. A strict compliance on the part of manufacturers with the department's ruling, and the intelligent use of the fertilizers in the manner above indicated, should protect the farmers from loss and damage to their crops while the whole matter is being further investigated by the department and by the State experiment stations.

A CEMETERY—AND A SERMON

It was a neat little country cemetery, much like most little country cemeteries, yet there was something queer about it. There was the arched gateway and the customary weeping willows by it. The clipped hedge was like most cemetery hedges. The tombstones were about the average run of tombstones. But, withal, there was something queer—even shocking. Then you discovered what it was. These were truthful tombstones. Consoling platitudes—"Too pure for earth," and that like—found no place. Instead, there were such epitaphs as these: "Mother—walked to death in her kitchen;" "Sacred to the memory of Jane—she scrubbed herself into eternity;" "Grandma — washed herself away;" "Susie—swept out of life with too heavy a broom."

The people who saw that cemetery—and there were thousands of them—may have been shocked for the instant, but they came away with the thought that one might be better for seeing such a cemetery. For, you see, it was a miniature cemetery, 3 feet square, and it was part of an exhibit at the Montana State Fair. Such levity with the most solemn thing that mankind knows, could not be justified merely on the theory that the things said were true—but those who saw it came away with the belief that it was justified by way of keeping just those things from being true. And that was the purpose of the exhibit, placed there by the agricultural extension department of the State Agricultural College of Montana. It was meant to emphasize the need for home conveniences, for lack of which many a farm woman has gone to her grave before her time.

There were other exhibits designed to drive home the same hard truth. One was a model showing a bleak farmhouse on a bare hill. At the bottom of the hill ran a little stream, and by the stream were barns and cattle. Struggling up the hill toward the house with two heavy pails of water was a bent old woman. And the legend was: "Convenient for the cattle—but not for mother." Then there was a farmhouse with the water supply as it should be, the woman in the yard sprinkling her flower beds with a hose. And the inscription read: "Convenient for mother—and the cattle, too." Another model showed a kitchen as it should be, and another a kitchen as it should not be. And there was the legend: "A long-distance kitchen shortens life."

The lesson taught by the exhibit is one that the State agricultural colleges and the United States Department of Agriculture are trying to teach by every means at their command—greater convenience and a larger measure of comfort in the farm home.

CROPS' VALUE ALMOST TRIPLED

(*Continued from page 1.*)

pared with $8,284,000,000 in 1918; $6,736,000,000 in 1917; $6,021,000,000 in 1916; $5,890,000,000 in 1914; and $5,318,000,000 for the five-year average, 1910–1914.

"This increased financial showing, it is again necessary to emphasize, does not mean that the Nation is better off to that extent or that its real wealth has advanced in that proportion. Considering merely the domestic relations, the true state is indicated rather in terms of real commodities, comparative statements of which are given in foregoing tables. The increased values, however, do reveal that the monetary returns to the farmers have increased proportionately with those of other groups of producers in the Nation, and that their purchasing power has kept pace in the rising scale of prices."

LAND ELIMINATED FROM FOREST

An executive order eliminating approximately 340 acres from the Madison National Forest, on the boundary of the forest, which lies close to the western confines of the Yellowstone National Park, was signed by the President on December 5. The object of this elimination is to provide space for the establishment of the town of Yellowstone under the town-site laws. Of the total area of 340 acres, 1.03 acres are retained by metes and bounds within the town limits for use by forest officers. The tract is withdrawn under the act of June 25, 1910, which authorizes such withdrawal for public purposes.

A preliminary report on the production and stocks of naval stores was issued by the Bureau of Chemistry, United States Department of Agriculture, on December 9.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Making Good Citizens.

Earnest effort to acquaint foreign people in this country with American ways of thought and living is being made this year by various agencies, including the extension service of the U. S. Department of Agriculture and the State agricultural colleges. Within the territory of nearly every county or home demonstration agent are to be found a greater or less number of people, living quite to themselves and speaking their native language almost entirely. These people from other lands are usually very appreciative of any effort made to teach them American ways, and they welcome instruction in the cooking of American foods, the making of American clothes, and even the growing of vegetables that thrive here.

In Lake Charles, La., is a Mexican community, which is as typically Mexican as if it were located in Mexico. The home demonstration agent in that parish has been endeavoring this year to bring about a change in living conditions. A sewing class has been organized and garden work encouraged. Previously, only two people in this Mexican community had ever had a garden. Among the things the mothers wished to learn was how to make American cookies. One of the women offered to teach the home economics worker how to make the finest of Mexican hot tamales if she would in turn teach her how to make American pastry. While they learn American cooking and sewing it is hoped that incidentally they will learn not only the American language but American ideas of living as well.

Working for More Pastures.

The pasture problem in the coastal plain section of the South must be solved, says the United States Department of Agriculture, in order to bring about agricultural utilization of these lands. The problem has become increasingly important since the high prices of feeds are more and more forcing attention to the only cheap feed—pasturage. The Bureau of Plant Industry has recently done a great deal of work along this line. The investigators have confirmed the bluegrass-pasture experiments, in which it was shown that heavy pasturing was much the best method both agronomically and economically. Unfortunately, say the specialists, facilities for experiments and demonstrations are wholly inadequate in attempting to work out a system of better handling of northern pastures. On the coastal plains of the South, unless the soils are much affected by drought, continue the experts, carpet grass supplemented with lespedeza makes excellent pasture. Golden crown grass is also excellent. Efforts are being made, with the aid of a new stripping machine, to place carpet grass seed on the market in adequate quantity. Several newly introduced grasses are promising as pasture possibilities.

Testing Asiatic Grasses.

Numerous grasses and legumes secured by botanical explorations in central Asia may disclose species that will solve the problem of range improvement on semi-arid lands, according to the Bureau of Plant Industry, United States Department of Agriculture. There is a constant demand for grass that will increase the amount of feed above that which may be secured by rational grazing of the land under fences, and specialists of the department are undertaking a systematic testing of Asiatic grasses and legumes.

Much Soil Survey Work Done.

Soil surveys have been made of 341,481,600 acres, or 517,940 square miles, of land in the United States, and maps are available in the Bureau of Soils, United States Department of Agriculture, showing the character of soil in every nook of those areas. The surveys made during the past year covered 33,988 square miles. During the year, also, the Soil Survey did a great deal of work in cooperation with other agencies, some of it pertaining to foreign countries. At the request of the State Department a party from the Soil Survey went to Central America and made an economic survey of parts of Guatemala and Honduras. For the American Geographic Society, information was compiled relating to the soils of Africa and Asiatic Russia.

It Pays to Grade Cotton.

Texas growers producing cotton of good staple and marketing it cooperatively received from 1¼ to 8 cents more a pound for their cotton than was received for other cotton grown in the same community and sold by individual farmers, according to the Bureau of Markets, U. S. Department of Agriculture. Demonstrations have been made to acquaint producers with the desirability of classifying their cotton before sale and to show them how to use market quotations in determining the value of their crop. About 236,360 bales of cotton were classed in this work in Texas, Arkansas, North Carolina, Louisiana, Mississippi, and South Carolina during the cotton season of 1918–19.

New Grapes in Wine Districts.

Investigations being conducted by the United States Department of Agriculture have apparently demonstrated that long-keeping grapes can be successfully grown on a commercial scale in the wine-grape districts of the Pacific coast. The Chief of the Bureau of Plant Industry reports that the culture of the Ohanez and other late varieties can apparently be carried on advantageously with a view to their taking the place of the Almeria and other types of long-keeping grapes that are now imported into this country from Spain and elsewhere. This industry, in connection with the development of the Panariti and other currant grapes already under way gives good promise of future profits for the wine-grape growers of the Pacific coast.

Many Products Recovered from Kelp.

Kelp, apparently, is going to be a profitable source of potash, an important fertilizer ingredient that the United States formerly obtained almost wholly from Germany. During the war, an experimental kelp-potash plant was established by the United States Department of Agriculture at Summerland, Calif. Before the second year of operation was completed it had been determined not only that the plant could be made self-sustaining on the basis of potash alone, at $2.50 a unit, but that a number of valuable by-products could be profitably obtained. The Chief of the Bureau of Soils, which bureau operates the enterprise, estimates that if the plant turns out $300 worth of potassium chloride a day, it may at the same time turn out $269 worth a day of the four principal by-products.

Among the by-products whose commercial obtainability has been established

are iodine, common salt, ammonia, and bleaching carbon. This bleaching carbon, formerly imported from Europe and sold for 20 cents a pound, has been prepared and sold from the Summerland plant at 15 cents a pound and appears at present about able to pay the production cost of itself and the potash, with good reason to believe that it may ultimately be made to pay the operating cost of the entire enterprise. It has been definitely established by large-scale operations that very little of the nitrogen of kelp is lost in the various processes and that it can be commercially recovered as ammonia, thus yielding another important fertilizer element. In this process enough combustible gas is released greatly to reduce if not to eliminate fuel comsumption in the plant. A tar is likewise recovered, and its subproducts, kelp oils and creosote, have been shown to be of value, respectively, as flotation agents and disinfectants. Still other valuable by-products are likely to be recovered.

"The field broadens tremendously as progress is made," reports the Chief of the Bureau of Soils.

Has Cotton Warehouse Designs.

Standard cotton warehouse designs have been prepared by the Bureau of Markets, United States Department of Agriculture, and persons adopting them are given cooperative supervision in an effort to promote the construction of warehouses in accordance with the most advanced ideas. This work should save insurance costs, says the bureau, and also aid in obtaining better warehouse service.

Destructive Birds Investigated.

Now that the beneficial species of birds are fortified by ample protective legislation, the importance becomes apparent of perfecting methods for protecting crops against damage by birds, says the Chief of the Bureau of Biological Survey, United States Department of Agriculture. A policy of bird conservation that will best serve the interests of the farmer, he says, involves not only a thorough appreciation of the value of beneficial species but adequate attention to the control of troublesome ones. Following out that line of endeavor, investigations have been made of a number of species complained of as troublesome, and in some cases special rulings have been made under the migratory bird treaty act to permit control measures.

It has been determined that bobolinks, protected under the migratory bird treaty act, are as destructive as ever to rice when opportunity offers, and in order to control them an open season has been declared on bobolinks in Pennsylvania and the Atlantic Coast States from New Jersey southward to and including Florida. Certain species of wild duck, also protected under the act, were found to be destructive in the rice fields of California, and a special order was issued permitting rice growers to kill them out of season. In the Arkansas rice fields a special order had to be issued permitting the shooting of ducks at night. Meadowlarks in South Carolina were found to be inflicting severe damage to sprouting corn and oats. In order to afford proper relief, says the chief of the Survey, permission has been given farmers to drive the birds from the fields with shotguns, if necessary. Complaints were received from Louisiana that night herons were a menace to the frogging industry, and it was suggested to the bureau that permission be granted to shoot them. Investigation, however, showed that about 96 per cent of the food of night herons is crawfish; not a single frog was found in any of the stomachs examined.

Other birds, not protected under the migratory bird treaty act, were also reported to be inflicting severe damage in some instances. Red-winged blackbirds in Ohio were found to be very destructive of sweet corn and even of field corn. Poisoning methods, effective for small fields, were devised, but it is necessary to discover more economical measures for large fields. Complaints of depredations by eagles were investigated. "It is evident," says the report of the chief, "that these powerful birds are seriously destructive at times and their unlimited protection is probably not warranted." This applies to both the golden and the bald eagle. Charges came from the South Atlantic coast that the brown pelican was responsible for reduction in the number of mullet and other food fishes. Examination of a quantity of regurgitated material showed that of 814 fish eaten only 9 were of species valuable as human food.

Purebreds Pay in Poultry.

That the value of purebred males counts as much in poultry raising as in stock raising is shown by the records of three flocks of Leghorns, the data for which have been supplied the United States Department of Agriculture by the North Carolina Experiment Station. Flock 1, the egg production of which is included in these records, consisted of common hens; flock 2 was produced by breeding these hens to common males; flock 3 was produced by breeding flock 1 to a rooster from a high-producing hen. The following year the original flock laid 89 eggs a hen; flock 2 laid an average of 88 eggs a hen; and flock 3 laid an average of 136 eggs a hen. This increase of 54 per cent in one year tells very specifically the benefits of using a purebred male. But the percentages alone do not tell the whole story, for a big proportion of the increase came at a season—May and June—when the production of flocks 1 and 2 was relatively low and the prices were good.

Children Need Wholesome Food.

At least one-fifth of all the school children in the United States are undernourished to-day, it has been estimated. This condition is not the result, as in many lands, of lack of food, but comes about because in many cases American mothers are not giving their children the right kinds of food. The right kind is not necessarily more expensive than the wrong kind and oftentimes costs less. An undernourished child is physically, mentally, and sometimes morally below par and shows it in appearance, school work, and conduct.

In order to arouse the attention of parents to the necessity of giving a child proper food, at many fairs home demonstration agents, working under the United States Department of Agriculture and the State agricultural colleges, have measured and weighed the children brought to them at their booths. At the Windsor Fair in Connecticut 177 boys and girls were weighed and measured by the home demonstration agent. The majority were from 8 to 12 years of age. Of the 85 boys who were weighed, 43 were underweight. Of the 92 girls, 55 were underweight. Arrangements have been made with the home economics committee of the town to follow up the cases where there were marked signs of malnutrition. The children themselves were much interested and were keen about learning how to gain weight and health. Bulletins on child feeding and suggestions as to changes in diet were received with appreciation.

Talks on proper diet for a child are sometimes given to the children in schoolrooms. In Pottawatamie County, Iowa, the home demonstration agent in September talked to 5,029 children in schools on the value of milk, cereals, and vegetables in their diet.

When possible, a second weighing is made several weeks after the first talk, when the children have had time to obtain results from changing their diet. The improvement is marked in those who have followed instructions.

Montana Ships Out Many Cattle.

An unusually large movement of cattle out of Montana has taken place in 1919,

according to the Bureau of Animal Industry, United States Department of Agriculture. Normally, the movement of cattle from this State is between 200,000 and 300,000 head annually. It is estimated that already between 500,000 and 600,000 have been shipped out for all purposes this year. Figures are not available for a similar comparison in regard to sheep, but reports from representatives of the department in the field indicate that between 400,000 and 500,000 sheep of all classes of range stock were moved out of the Northwest for feeding and grazing in sections east and west of the drought area.

These animals went first into the available near-by pasture lands in the Dakotas and Nebraska. Later they were moved into the middle corn-belt States, into Minnesota, Wisconsin, and the upper peninsula of Michigan, and still later into Texas and New Mexico. The movement into the two latter States continued on into November. The heavy snowfall that occurred early in the season overtook some ranchmen who were taking chances on the weather and they found it necessary to move their herds quickly. It is thought that enough railroad cars were made available to fill all orders. Stock cars moving west were given preference over dead freight.

Information that has reached the department indicates that the movement of cattle into New Mexico and Texas has been satisfactory, and with certain exceptions, the same holds true with respect to Minnesota, Wisconsin, and Michigan. Reports indicate that a considerable movement of sheep and cattle into Michigan and near-by territory for summer grazing is likely in future years. Feed supplies in the Northwest appear to be adequate for live stock remaining on the ranges and there is now no expectation of serious shortage if the winter is normal.

Will Classify Cotton Before Tendered on Future Contracts

The boards of cotton examiners of the Bureau of Markets at New York and New Orleans will, under certain conditions, examine samples of cotton and furnish preliminary informal classification of such samples to shippers and others interested, according to an announcement from the United States Department of Agriculture.

Copies of the new regulations providing for this service and of the form of application blank which must be used in submitting the samples may be obtained from the board of cotton examiners of the Bureau of Markets, located at New Orleans in the Abraham Building, or at New York at 27 Cotton Exchange Building. The service will be given to any shipper or other person who owns, controls or has the disposition of cotton and who contemplates tendering it on a future contract made on a future exchange at New York or New Orleans, subject to the United States cotton futures act.

Through this new service, says the bureau, it will be possible for the owner of cotton to learn how the official cotton standards of the United States are applied by the Government boards of cotton examiners and to form an opinion as to the classification of his cotton and the best disposition to make of it, before submitting it for the inspection, sampling, and handling necessary to make an actual tender on a future contract. A charge of thirty cents a bale will be made for each sample classed by boards of cotton examiners.

Tick Eradication Effective, Say Cattle Owners in Texas

Tick eradication work in Austin County, Tex, "has fulfilled the expectations of its friends," according to a letter received by the Bureau of Animal Industry, United States Department of Agriculture, from L. A. Machemehl, of Bellville, Tex. This cattle owner says that he dipped about a thousand head of cattle not less than 12 times during 1919 and he estimates the increase in value of dipped cattle in Austin County at not less than $5 a head.

"The lower end of this county," his letter continues, "has had in former years considerable death loss during the summer months. This has been eliminated entirely this season, due, in my opinion, to the systematic tick eradication. The cooperation of the cattle interests in this work for the coming season seems to be assured and will no doubt have splendid results."

A. A. Sanders, another cattle owner of this county, writes as follows:

"Tick eradication conducted systematically has been one of the most progressive steps ever taken by the cattle owners of Austin County. My cattle are going into the winter free from ticks and in condition to withstand severe weather.

"The eradication of the tick has made it possible for me to improve my herd by bringing in a registered Holstein bull. In the neighborhood of 125 Holstein calves have been introduced into Austin County, some from as far north as New York.

"The losses this year from tick fever have been few and far between in Austin County. Before systematic tick eradication was started the losses were very heavy every year.

"Tick eradication is a life-saver for the cattle owner."

MINERS TO HAVE HOT COFFEE

"Can you suggest some feasible way of supplying the men who are working in our mines with hot coffee at least once during their working hours?" the head of the welfare department of a large mining company, located in Cochise County, Ariz., asked the home demonstration agent of that country.

He desired an arrangement whereby the men could be supplied at the shafts of the mines with a hot drink to supplement their cold lunches. The home demonstration agent visited eight shafts with the foreman of the mines to observe conditions. Before making suggestions she also made an investigation of the character of lunch which was carried by the miners. She found that many take none at all. Of the 1,020 men who carried their lunches, only 61 had bottles which keep liquids hot. The rest ate an entirely cold meal at noon. This seemed to be one of the reasons for the lessened efficiency of the men in the afternoons. As a result of the investigation huge containers of coffee have been placed recently in strategic points at the shaft mouths so that the men may have a hot drink with their noonday meal.

DUST EXPLOSION TALK IN CANADA

In response to an invitation from the Dominion Fire Commissioner representatives of the United States Department of Agriculture, who were recently in the Northwest in a campaign to prevent grain-dust explosions, crossed the border to give their lecture and demonstrations at Fort William, Ontario. Most of the audience of 500 were Canadian grain men. Canada is deeply interested in the prevention of grain-dust explosions because of a blast which took place recently at Port Colburne, causing the loss of many lives. The Canadians expressed themselves as grateful for the courtesy shown by the United States representatives in crossing the border to bring information regarding the best methods of preventing blasts in grain-handling plants.

"By saving nickels and dimes a thrifty person lays the foundation of a fortune."—*James A. Garfield.* Remember, 16 Thrift Stamps, plus a few cents are exchangeable for a War Saving Stamp.

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EXCESS WOOL PROFITS BEING COLLECTED BY DEPARTMENT

Status of Work Explained for Benefit of Inquirers

Audits of Books of Some Dealers May Be Added Step in Procedure—Payments to Growers Simultaneously

The Department of Agriculture is receiving many inquiries from the wool growers of the country concerning the progress it is making in winding up the affairs of the domestic wool section of the War Industries Board. This work involves four distinct steps or activities and it seems probable that a fifth will be necessary.

The first step is to secure, on forms furnished by the department, sworn reports from the 3,686 country dealers and the 179 distributing center dealers to whom the War Industries Board issued permits to deal in wool of the 1918 clip.

The second involves the auditing of these reports, in detail, to determine whether the methods pursued and the profits made are in accordance with the regulations.

The third is the collection of excess profits from those persons or firms whose reports, after auditing, show that such excess profits were made. As rapidly as they are received by the department, all remittances for excess profits are being deposited as a special fund in the Treasury of the United States.

The fourth is a careful analysis of each report which shows excess profit with a view to work out the fairest possible method of distributing such profits. After this is done, the department proposes to disburse the excess profits by check of its own disbursing officer drawn on the Treasurer of the United States.

The fifth step will be an audit in the field of the books and records of dealers whose reports for any reason seem to make this course advisable.

First Step Nearly Completed

The first division of the work has been very nearly completed. A relatively small number of approved dealers have failed to make reports, and it is believed that the transactions of many of these were so small as to be practically negligible.

The department has not yet taken drastic measures to obtain the outstanding reports, but is ready to take whatever action may be necessary to enforce compliance with the regulations.

It has been discovered that several hundred wool dealers carried on their business as usual during 1918 without securing permits. As the names of these dealers have been ascertained, they have been required to furnish reports similar in all respects to those required from permit holders and to pay over their excess profits whenever it appears that they have made more than the regulations allowed. In other words, they are not allowed to derive any advantage from having operated in ignorance or violation of the regulations. The discovery of many of these unauthorized dealers was impossible until the reports of the 179 dealers in distributing centers were audited, since the entire wool clip of the country eventually passed through their

(Continued on page 11.)

MAKE YOUR WOODLAND PAY

Farm forestry helps farmers in:
Marketing timber profitably.
Supplying timber for farm needs.
Furnishing paying employment during the winter.
Making waste lands yield a profit.
Increasing the sale value of the farm.

Farm forestry means:
Improving the woods by the right kind of cutting.
Protecting the woods from fire and other injuries.
Utilizing farm timber to the best advantage.
Reclaiming gullies and utilizing waste lands by planting forest trees.
Keeping woodlands growing at their maximum rate of production.

Farm forestry, as a branch of agriculture, is the handling of forest trees and woodlands in such a manner as to increase the income and permanent value of the farm and add to its comfort and attractiveness as a home.

LIMIT TO ABSENTEE OWNERSHIP IS AN INCREASING PROBLEM

Serious Thought Must Be Given to it, Says Secretary

Short Periods of Tenancy, with Lack of Interest in Farm Improvements, One of Evils in Present Situation

Serious thought must be given to the problem of limiting absentee ownership of land, declares David F. Houston, Secretary of Agriculture, in his annual report. On the average, he points out, the tenant remains on the same farm only about one-sixth as long as the owning farmer, and consequently often manifests little interest in the improvement of the farm and in the progress of the community. When this is added to the fact that a large number of landlords live at a distance from their farms and contribute nothing either to the success of the tenant or to the progress of the community, a situation is presented which necessitates the taking of steps to retard the increase of tenancy.

"A certain proportion of tenants," continues the Secretary, "is normal and may not be unwholesome. Many farm owners, because of age or infirmity, find it necessary to retire. Their farms are temporarily operated by their sons or other relatives who subsequently may become owners through inheritance or purchase. Large numbers of young men with little capital find tenancy a convenient stage in their progress to ownership. Certain local studies reveal the fact that nearly two-thirds of the farm owners who operate their farms have passed through this stage. Frequently it serves as a useful period of apprenticeship in farm management before the heavier financial burdens of ownership are assumed.

Help of Education and Training

"In a great many cases the farmer has not yet acquired sufficient experience as a manager to operate his farm efficiently without the assistance of the landlord. In some instances, also, the tenant has

been reared in an environment characterized by lack of thrift, self-restraint, and systematic industry. He may not have the general intelligence or technical knowledge to stand alone in the management of a farm. Where these personal limitations exist the solution of the problem lies in education, training, and the development of systematic habits of industry and thrift rather than in radical changes in the system of tenure.

"Since there will continue to be a certain number of tenants, every effort should be made to change the conditions of leasing so as to improve the methods of agriculture, increase the period of occupancy, and insure a fair division of returns; and the States should provide by law for a system of compensation by owners to tenants for unexhausted improvements and set up the necessary administrative machinery. Such arrangements have prevailed in England for many years to the benefit of all concerned.

"Although landlords may, and often do, play an important part in financing and in operating farms, there are large numbers who live at a distance and who contribute nothing toward their efficient utilization or improvement. Moreover, they often fail to interest themselves in developing the progress of the community in which their land is situated, although they benefit by such progress. Land, however, is peculiarly important to all the people, and the welfare and prosperity of the community, as well as its economic and social progress, depend so vitally on its use and the relationship of the population to it that serious thought must be given to the problem of limiting absentee ownership.

Smooth the Road to Ownership

"The endeavor to develop a more harmonious and efficient relation between tenant and landlord and to restrict absentee landlordism does not obviate the necessity of taking measures to retard the increase of tenancy. The road to farm ownership should be made as smooth as possible. This may be accomplished in part by providing more liberal credit facilities. The Federal farm-loan system has furnished a means whereby farmers may conveniently borrow under the conservative conditions of first-mortgage security. However, an analysis of the amount loaned shows that only a small proportion of the net proceeds was ostensibly obtained for the purchase of farms.

"In some sections the growth of tenancy has been stimulated by the fact that the price of land has been higher than the level justified by current earnings. Consequently, it has been more profitable to rent than to buy unless one wished to speculate in land values. Recently there has been a tendency for prices to increase with extreme rapidity. There has been active, and in many respects unwholesome, speculation which has profited mainly the real estate agents. A heavy charge, therefore, has been placed against the earnings of the land on the assumption of the continuance of war prices. The advancing price of land is especially serious in the case of the undeveloped regions of the country. It constitutes an obstacle to development, for the actual settler is compelled to assume at the outset unduly heavy interest charges."

FISHERMEN MENACE FAMOUS BIRD ISLANDS IN PACIFIC

Sticking out in the Pacific Ocean 900 miles beyond Honolulu is a group of little islands, the largest not more than 2 square miles in area, and several of them barely rising above the waves at high tide. Yet on those islands are many hundreds of thousands of birds and among them are at least six species not found anywhere else in the world. In 1911 one of those species was represented by six birds—all that were left as the sole means of perpetuating the species, and they concentrated on a single little island where one man might kill them all in one minute's shooting.

That species—the Laysan teal—has fortunately increased until there are, by estimate, 35 individuals. For the United States Department of Agriculture, for a few years, has controlled the islands as a bird reservation—the Hawaiian Islands Reservation, it is called. But protecting the birds there is a precarious business. The possibility has existed always that one or more of the rare species might be wiped out in a day.

Albatross Destroyers Arrested

By way of illustration, this: One day in 1909 the crew of the cutter *Thetis* found an old shed absolutely piled full of albatross wings. A search revealed the fact that 23 plume hunters had landed on Laysan Island and had killed at least 300,000 birds. The men were captured, taken to Honolulu, and formally arrested. Since that time there is not known to have been any repetition of such depredations, but it is always imminent.

Just now many fishermen—largely nationals of countries other than the United States—are extending their operations from Honolulu out to the region of the bird reservation. Landings on the islands are constantly imminent, and such landings would be a menace to one of the most remarkable bird-breeding places in the world. The Bureau of Biological Survey, having direct charge of the reservation, is calling attention to the fact that disturbing the birds on Laysan or any of the smaller islands is forbidden, and announcing that the reservation will be protected, by whatever means are necessary, for the benefit of all the peoples of the world.

Rare Birds on Islands

The species that nest there and nowhere else are the Laysan teal, the little Laysan rail, the Laysan honey-eater, the Laysan finch, the miller bird (a small warbler), the Hawaiian tern, and the Laysan albatross. Other species that nest principally on Laysan and adjacent islands and would be in danger of extermination if molested there are the red-tailed tropic bird, the black-footed albatross, the gray-backed tern, and the sooty tern.

The islands composing the reservation are Laysan Island, Ocean or Cure Island, Pearl and Hermes Reef, Lysianski or Pell Island, Mary Reef, Dowsett Reef, Gardiner Island, Two Brothers Reef, French Frigate Shoal, Necker Island, Frost Shoal, and Bird Island.

GOVERNMENT STALLION WINS

Troubadour of Willowmoor, 6459, the Morgan stallion at the head of the Government breeding work at the Morgan Horse Farm, Middlebury, Vt., won over all Morgan sires exhibited at the 1919 International Live Stock Exposition. In a class of nine entries Troubadour of Willowmoor was first, Sir Ethan Allen was second, and Ajax was third. Troubadour is a solid bay in color—is nine years old, and was selected by specialists of the United States Department of Agriculture as a yearling. He has been maintained and developed at the Morgan Horse Farm, where he has been used in military remount breeding service as well as for improvement of the registered Morgans.

Troubadour of Willowmoor weighs 1,200 pounds and stands 15½ hands high. He is a son of Troubadour, by Jubilee de Jarnette, a purebred Morgan. His dam was Fannie 2d, a well-conformed type mare of the breed.

When trees are properly spaced, nature "self prunes" the lower branches. But in farm timber tracts of small pines and with valuable kinds of trees, pruning is often a paying practice, say forestry specialists of the United States Department of Agriculture, if it is done during the slack time of winter.

WHAT DOES A CALORIE MEAN? HERE IS ANSWER SIMPLY TOLD

How Housewife Can Figure Out Cheapest Fuel for Body

Tables Prepared by Department of Agriculture Furnish a Way of Computing Food Values and Comparative Costs

"A family consisting of father, mother, and three children requires about a hundred and twenty 100-calorie portions for an adequate daily diet."

How much would that have meant to the average housekeeper 10 years ago? She probably could not have told whether calories were "islands or canned goods," as Mr. Dooley said of the Philippines. Lately, however, they have been talked and written about so much that she at least has a vague notion that they are in some way connected with the value of food to the body and that the more calories she can provide for her family, the better it will be nourished. The United States Department of Agriculture has recently published some tables which make it easier for her to "count the calories" as well as the cost of the food she buys. She can use such tables without knowing anything more about calories, just as she can use electric light without understanding the kilowatt hours that appear in the monthly bill, but calories are neither so mysterious nor so complicated that she can not easily understand what they are.

The word calorie comes from "calor," a Latin word meaning heat. A calorie is a unit for measuring quantities of heat just as a yard is a unit for measuring length or a pound for weight. Roughly, a calorie equals the amount of heat required to raise the temperature of a pound of water 4 degrees F.

Heat and Energy Similar

But that isn't the whole story. What we call heat and what we call energy are really different forms of the same force. The heat of the sun, the strength of the winds, the warmth from the fire, the pressure of the expanding steam or exploding gas in the engine, even the flowing of sap in the plant and the contraction of the muscles in our bodies—all these are due to the same universal energy showing itself in different ways. Coal is made up of substances held together by this same energy, and so is gasoline or any other kind of fuel. When the fuel is burned, the energy is set free in the form of heat which in its turn may become the force that drives the machine. In this last form we call it mechanical energy, and we know that a given amount of heat will yield an equivalent amount of mechanical energy. Thus our calorie may represent either enough heat to raise the temperature of one pound of water 4 degrees F. or enough mechanical force to lift 1 ton about 1½ feet.

Now, food is fuel for our bodies and the energy stored in it can be released in the body and used for keeping it warm or for the work of the muscles, much as gasoline is released and used when the gas is consumed in the motor. The more we exercise our muscles the more mechanical energy we release and the more must be provided by our food fuel. In order to make sure that we are stoking our body engine rightly we must be able to say both how much energy our food yields (called its fuel or energy value) and how much energy our bodies use. This is where the calories come in, for we can measure both food energy and body energy in calories.

Facts Simplified

How scientists have learned to do this is a really wonderful story in which famous men all over the world have been playing their parts for a century, marvelously accurate apparatus has been developed and all sorts of interesting facts have been discovered. Thanks to it all, the scientists now really know what are the energy values of our common foods and what are the energy needs of all sorts and conditions of men. And, best of all, they know these formerly mysterious things so well that they can make them of practical use to plain, everyday people who don't understand much about science.

Heat and energy are sometimes measured in other ways than by calories, just

HOW TO FIGURE FOOD COSTS BY CALORIES.

Article.	100-calorie portions.	Price.	Price per 100-calorie portion.
VEGETABLES AND FRUITS.			
Potatoes	3 per pound	.... cents per pound	.... cents.
Onions	2 per pound	....do	Do.
Cabbage	1 per pound	....do	Do.
Corn, canned	3 per No. 2 can	.... cents per No. 2 can	Do.
Peas, canned	....do	....do	Do.
Tomatoes, canned	1 per No. 2 can	....do	Do.
Prunes	11 per pound	.... cents per pound	Do.
Oranges (8 ounces each)	10 per dozen	.... cents per dozen	Do.
Bananas (5 ounces each)	11 per dozen	....do	Do.
MILK, EGGS, MEAT, FISH, ETC.			
Milk	6 per quart	.... cents per quart	.... cents.
Cheese	20 per pound	.... cents per pound	Do.
Eggs	9 per dozen	.... cents per dozen	Do.
Sirloin steak	10 per pound	.... cents per pound	Do.
Round steak	7 per pound	....do	Do.
Rib roast	11 per pound	....do	Do.
Chuck roast	7 per pound	....do	Do.
Plate beef	12 per pound	....do	Do.
Pork chops	....do	....do	Do.
Ham	15 per pound	....do	Do.
Lamb	11 per pound	....do	Do.
Hens	8 per pound	....do	Do.
Salmon, canned	7 per pound	....do	Do.
Mackerel, salt	11 per pound	....do	Do.
Oysters	5 per quart	.... cents per quart	Do.
CEREALS.			
Corn meal	16 per pound	.... cents per pound	.... cents.
Rolled oats	18 per pound	....do	Do.
Wheat flour	16 per pound	....do	Do.
Bread	12 per pound	....do	Do.
Rice	16 per pound	....do	Do.
Macaroni	....do	....do	Do.
Corn flakes	....do	....do	Do.
Beans, dried	....do	....do	Do.
SUGAR AND SUGARY FOODS.			
Sugar, granulated	18 per pound	.... cents per pound	.... cents.
Sugar, lump	....do	....do	Do.
Sugar, maple	13 per pound	....do	Do.
Honey	15 per pound	....do	Do.
Molasses	13 per pound	....do	Do.
Sirup, corn	14 per pound	....do	Do.
Candy	17 per pound	....do	Do.
FAT AND FATTY FOODS.			
Butter	34 per pound	.... cents per pound	.... cents
Lard	41 per pound	....do	Do.
Vegetable oils	....do	....do	Do.
Bacon	26 per pound	....do	Do.
Cream	9 per pint	.... cents per pint	Do.

as weight is sometimes measured in kilograms instead of pounds, and length in meters instead of yards. In questions of engine fuel another and larger unit, called the British thermal unit, is usually more convenient than the calorie, while in dealing with some types of mechanical work the unit called the foot-ton is often used. But for questions of human food and body energy the calorie is almost universally chosen as the most satisfactory measure. Sometimes, when the material measured yields so many calories that we have to discuss them in tens of thousands, the 100-calorie portion is used instead, just as dollars are used instead of cents in reckoning prices. This 100-calorie portion means simply the amount of a given food which would yield 100 calories of energy.

Thus we find that the sentence at the beginning of this story really does mean something. It means that the family described in it probably uses up body energy at the rate of abour 12,000 calories a day and needs food fuel of the same energy value.

Choosing Cheap Fuel

Body fuel, like other kinds of fuel, costs money, and the problem is to get the amount needed for the smallest sum possible, which means choosing food rather carefully. A man running a sawmill in the cypress swamps of Louisiana or the Michigan woods would have to pay a lot of money for enough anthracite coal to run his steam engine, but he can take his fuel from the sawdust heap and the slab-pile, and so save money.

Much the same situation exists with regard to the fuel for the human engine. If our family of five bought its 120 100-calorie portions all in sirloin steak at 50 cents a pound the cost would be $6 a day. If it bought them all in white potatoes at $1.80 a bushel the cost would be only $1.20 a day.

How to Use Calorie Tables

Other things than body fuel are necessary in human food. Not all of the necessary body fuel may safely be taken from potatoes, nor yet all of it from beefsteak. Scientific investigations have shown that of the 120 100-calorie portions necessary for the family of five, about 24 should come from vegetables and fruits, 36 from milk, eggs, and meat, 30 from cereals and legumes, 12 from sugar and sugary foods, and 18 from fats and fatty foods. If these amounts are used as a guide in planning the meals of a healthy family there is little need to worry about their getting the right kinds and quantities of foods.

Now a 100-calorie portion of some meats costs a good deal more than a 100-calorie portion of other meats. This is the case, too, with vegetables and fruits, cereals, fats, and sweets. The cheapest food per pound is not always the cheapest food per 100-calorie portion. In this day of high prices, the housewife is interested in knowing what foods that will adequately feed the family can be bought cheapest—figured on a sustenance basis rather than on a pound or pint basis. And that is what the tables prepared by the Department of Agriculture do for her.

By using the tables, she can determine the price of a 100-calorie portion of a particular food. All she has to do is to insert the price per pound or bushel at the proper place in the third column and divide it by the corresponding figure in the second column.

Here's an Example

To illustrate: Suppose the meat market man tells her that sirloin steak is 50 cents a pound. She writes "50" opposite sirloin steak in the third column. Then she looks in the second column and finds, opposite sirloin steak, "10 per pound." She divides 50 by 10. The quotient is 5. Five cents, therefore, is the price of a 100-calorie portion of sirloin steak. In exactly the same way she can find the cost per 100-calorie portion of any food. And what is more, if she gets in the habit of thinking in 100-caloric portions as well as in pounds and bushels, she will very soon know how much such a portion of steak or apples or macaroni represents, and then she will be able to estimate easily whether or not she is getting what her family needs and at the best prices.

STATES ACTIVE IN ROAD WORK

Aside from money to be used cooperatively under the Federal aid road act, aggregating nearly $680,000,000, some States will expend large sums, and their several subdivisions will provide large additional amounts.

"It is interesting to note that up to July 1, 1919," says the Secretary of Agriculture in his annual report, "State bond issues aggregating $224,800,000 had been authorized and approved by popular vote and that provision has been made for voting next year on proposals for the issuance of additional State road bonds to the extent of approximately $314,000,000. During the present and the next fiscal year there will be made available for road improvement at least $1,000,000,000. Certainly few laws, if any, have produced greater results, either in terms of expenditures for a good purpose or in terms of helpful legislation and machinery, than the Federal aid road act. It seems clear, in the circumstances, that the principal limiting factors in the 1920 program will be those of rail transportation for, and production of, suitable road materials, the contractors' organizations available, and the labor supply."

ROAD WORK IS FACILITATED BY FEDERAL AID AMENDMENTS

Their Effect Shown in Report of Secretary of Agriculture

Continuation After 1922 of Federal Policy of Participation in Highway Building by Appropriations is Advocated

Amendments, passed last February, to the Federal aid road act have greatly facilitated the work of putting the country on a good-roads basis, in the opinion of David F. Houston, Secretary of Agriculture. These amendments, in brief, increase from $10,000 to $20,000 per mile the amount of Federal funds that may be expended by one road and considerably broaden the definition of what constitutes a rural post road. The act, as it now stands, says Secretary Houston, in his annual report, places only three limitations on the type of road which may be built, as follows:

"That the roads shall be 'substantial in character.' This means that the road must be so constructed that it will carry the prospective traffic with such maintenance expenses that the total annual charges will represent a reasonable expenditure for the public service rendered by the highway. It is to the interest of the States that the roads on which Federal funds are used be substantially constructed, because the law requires them, or their civil subdivisions, as a prerequisite to receiving further funds, to maintain properly all roads built with Federal aid. There is nothing in the law which restricts types of construction between narrower limits than those established by sound finance and good engineering practice.

Different Types of Roads

"That the amount contributed from the Federal Treasury in connection with any road shall not exceed 50 per cent of its cost or $20,000 a mile. The main thing is to build a road that will stand the traffic in the particular section of the country where it is constructed. The conditions in certain regions may require a heavy, comparatively high-cost type of road, while in others a lower cost type may meet all the requirements. Sentiment is growing throughout the country, even in the newer sections, in favor of more substantial roads. The people are beginning to realize that the expense of maintaining the lighter traffic types under heavy traffic is unbearable.

"That the road must be a 'rural post road' as defined in the act as amended; that is, 'any public road a major portion

of which is now used, or can be used, or forms a connecting link not to exceed 10 miles in length of any road or roads now or hereafter used for the transportation of the United States mails.' Under the original wording of the law, Federal funds could be expended only on roads upon which the United States mails 'now are or may hereafter be transported.' This feature was the most troublesome to the highway departments of the various States. It required a definite determination in each case of the actual post-route status of the road, which necessarily involved delays in many instances. Under the new definition, very few important roads, if any, will be debarred from receiving Federal aid, if all the other requirements of the act are met.

Administration of Work

"Following the amendments to the act, the regulations governing its administration and the standards for plans, specifications, and estimates were modified, and one of the most successful former State highway engineers in the country was placed in charge of the Federal aid road work. He has at his disposal a large staff of local and district engineer aids, and no pains will be spared to provide any further Federal assistance that may be needed. An advisory committee, composed of representatives of the State highway departments, selected at the request of the department by the American Association of State Highway Officials, with due regard to geographic considerations, also has been appointed to work in intimate touch with the Federal bureau, meeting with its officers at stated periods and at such other times as may seem desirable."

Secretary Houston believes that the Federal Government should continue its present policy of participation in road-building operations by the appropriation, if the financial condition of the Nation permits it, of $100,000,000 for at least each of the four years beginning with the fiscal year 1922, to be expended under the terms of existing legislation.

A most interesting instance of aroused ambition is that of Sherman Lynch, a Negro boy of Edwards, Miss., who is in a club supervised by the Department of Agriculture and the State colleges. Sherman joined the Farm Makers' Club, a club especially designed for Negro boys, in the fall of 1916. As a result of his work last year he was able to deposit $100 in the Bank of Edwards. With this $100 as an initial payment he has purchased 30 acres of land from his father, bargaining for the tract for the sum of $400.

FURTHER AID IN MARKETING IS A NEED IN AGRICULTURE

Secretary Favors Extension of Work in This Field

Tells of Activities That Have Clearly Proved Their Value—Would Standardize Steps in Handling Products

A private or governmental agency of national range to supervise or direct the marketing of the Nation's farm products would probably break down of its own weight, in the opinion of David F. Houston, Secretary of Agriculture. He calls attention, in his annual report, to the fact that measures to this end have recently been introduced in Congress and that the present time is especially fruitful of proposals of a large and novel nature designed quickly to solve marketing problems.

"In the field of distribution, as well as in the field of production," says the Secretary, "the farmers of the Nation must assume the main tasks of improvement. The Government should furnish all possible aid in the way of information and suggestion, create favorable conditions under which production and distribution may take place, and especially see that the channels of trade are open and that abuses do not exist.

"There is no question," continues the Secretary, "that everything which can legitimately be done to eliminate waste in marketing and to promote orderly distribution should be done. But the view of the most experienced students of the matter seems to be that we must approach the problem in simpler terms, work along lines which have clearly proven to be feasible, and promote existing tendencies and practices.

A Field for Work

"Certainly we can proceed further by State, Federal, and individual action in standardizing the production, the handling, and the packing of farm products and in promoting the use of standard containers and proper storage on farms in transit and at market centers. We can continue to furnish assistance in the preparation and installation of accounting systems and more extensively and accurately gather and furnish to the farmers of the Nation all pertinent statistical information. I need scarcely emphasize the paramount importance of making available daily to producers facts as to market prices, supplies, and demands. The market news services of the Department of Agriculture have already clearly proved their value. The department now conducts and operates an inspection service on fruits and vegetables covering 164 markets. It publishes reports on the supply, commercial movement, and prices of most of the important products, and, in cooperation with 14 States, is issuing exchange marketing lists which make known to county agents, breeders, and feeders in these States where surpluses of live stock, feeds, and seeds are to be found. It is estimated that last year through such service the farmers in Iowa alone made local exchanges having an estimated value of $1,500,000.

Help Cooperative Associations

"Particularly must the Federal and State agencies omit nothing to promote farmers' cooperative associations along right lines. Already, within a generation, many such bodies have appeared and rapidly expanded. It is estimated that they now market annually approximately $1,500,000,000 worth of commodities. They are of very diverse forms and sizes. For the most part, where they have been successful they have centered their activities on some one product, or on related products, in a given area. The indications are that with the continued success of these enterprises and with the proper educational effort and direction they will develop even more rapidly in the future. Through bulletins, news articles, and lectures the Department of Agriculture has endeavored to stimulate these efforts. It has furnished suggestions for State legislation governing their organization, and, in cooperation with 23 States, it has employed trained specialists to advise extension workers, including county agents and others, with reference to cooperative marketing.

"As I have said, the rational program would seem to be to expand these activities, which have clearly demonstrated their value, to follow the scent, as it were, and further to develop the machinery through which increased assistance may be furnished. There should be in every State one or more trained market specialists of the Department of Agriculture, working in cooperation with the proper State authority, to stimulate cooperative enterprises and to aid farmers in their marketing work by helpful suggestions as to plans and methods. These experts could very effectively aid the extension workers. County agents generally have the assistance of specialists in many other lines, but at present they have not the requisite aid in distribution. They can not be expected to be expert in all agricultural matters or to be omniscient. The department is requesting increased funds to make this extension possible and will take the necessary action promptly if the appropriations are made."

COW WITH TB IS MENACE TO HEALTHY CATTLE AND SWINE

How Disease May Be Spread Among Valuable Animals

Tuberculin Test is Dependable Method for Detection of Malady—Nation and States Attacking Most Costly of Cattle Ills

Bovine tuberculosis, which is prevalent in every State and Territory in the United States to a greater or less degree, is the object of concerted attack by State and Federal sanitary officials. It is the most costly of cattle diseases, causing the loss of millions of dollars annually to the American live-stock industry, and planting the source for potential losses by the broadspread distribution of active and dominant TB germs. Tuberculosis was disseminated from the eastern part of the United States into the Middle Western, Western, and Southern States by means of imported cattle, and with the development of cattle raising in the Central and Western States its spread was facilitated. In some localities in the West, where dairying has developed extensively, it is now known that carload lots of cows, purchased in other States, have contained 50 per cent or more of tubercular animals. Some herds of beef cattle in the western country have become contaminated with the disease from tuberculous purebred bulls and cows that came from diseased herds elsewhere.

The tuberculous cow is the greatest source of danger to healthy cattle. Any reacting cattle not promptly removed from the herd constitute a constant source of infection. Tuberculous cattle sooner or later begin to give off the germs of the disease. These germs escape by the mouth, nose, and bowels, and in milk. The discharged germs are carried in the air for a time until they fall to the ground. Healthy animals may take in the germs in the feed they eat and thus contract the disease. Continuous water troughs in barns containing diseased cattle, drinking holes containing material from infected animals, failure to clean and disinfect the premises occupied by the diseased cattle, and infected milking tubes and the practice of feeding calves with raw milk from tuberculous cows, are means by which tuberculosis spreads in a herd.

Sunlight Kills Germ

Tuberculosis is caused by a rod-shaped germ visible only under a high-powered microscope. When exposed to the direct rays of the sun it dies quickly—a fact to be noted in the disinfection of pastures, paddocks, and barn lots. While it is necessary for the germs of tuberculosis to be introduced into the body of the animal before the disease can be produced, there are many conditions or accessory causes which make animals especially susceptible to tuberculosis. Stabling animals in dark, poorly ventilated and dirty barns helps to spread tuberculosis among the stock whenever the germs are present. Any condition that produces constant strain upon the system of animals, such as continued forced lactation periods of dairy cows, renders them fit subjects for the development of tuberculosis.

The tuberculous cow is not only a menace to her mates, but is also the most common source of infection to swine, particularly where unpasteurized skim milk is utilized in the pork-making ration. The central skimming station is a tremendous source of disease transmission where the skim milk is not pasteurized, as this material is returned to the farms for feeding purposes, and the contaminated milk of but a few cows may infect the entire supply. Similarly, under corn-belt conditions where hogs follow cattle in the feed lots or pastures, tuberculosis is rapidly transmitted. Swine may also contract tuberculosis by eating parts of the carcasses of infected cattle, swine, or poultry. Other sources of contamination are infected sputum from human beings, and the feeding of uncooked garbage containing the germs of tuberculosis.

Tuberculin Test Reliable

A general rundown condition, accompanied by a cough, is often considered to be a case of tuberculosis, but is not a conclusive symptom, as the disease often involves the lymphatic glands, and an examination of such glands in the living animal is helpful in diagnosing the disease. The glands of the throat, udder, and point of the shoulder often present an abnormal condition. A tuberculin test, which induces characteristic temperature reaction in tuberculous animals after tuberculin is injected, is the most dependable means of detection. No harm can result to healthy animals from the proper application of tuberculin, even in doses many times greater than those customarily used. The subcutaneous test—the injection of a proper quantity of tuberculin under the skin in the subcutaneous tissue—is most commonly used. The intradermal test for detecting tuberculosis is used to a considerable extent, especially on range cattle or others not easily controlled. When made by those who have become skilled in its use, it is very accurate. The tuberculin is injected between the layers of the skin at the base of the tail, where the skin is soft and nearly hairless. The reaction consists of a swelling at the point of injection and is observed after 48 to 108 hours. The character of the swelling varies, and a proper diagnosis with this test can be made only by an experienced person. The ophthalmic method is used also to some extent in "check" testing in connection with either of the previously described methods. The tuberculin is placed in one eye while the other eye is used as a check. A reaction is indicated by a characteristic discharge from the eye receiving the treatment. This occurs about 6 to 10 hours after application. All tuber-

HOW TUBERCULOSIS SPREADS FROM A DISEASED HERD TO A HEALTHY ONE.

Tuberculosis may be introduced into a healthy herd by any of the following means:

Addition of an animal that is affected with the disease. Animals should be purchased only from herds known to be free from tuberculosis or from herds under supervision for the eradication of the disease.

Feeding calves with milk or other dairy products from tuberculous cows. This frequently occurs where the owner purchases mixed skim milk from the creamery and feeds it to his calves without first making it safe by boiling or pasteurization.

Careless showing of cattle at fairs and exhibitions. Reports have indicated that numerous herds have become infected through mingling with diseased cattle at shows or by occupying infected premises.

Shipment of animals in cars which have recently carried diseased cattle and which have not been disinfected properly.

Use of community pastures in which tuberculous cattle are allowed to graze.

In most cases the outward appearance of the animal bears no relation to the degree of infection. The disease frequently develops so slowly that in some cases it may be months, or even longer, before any symptoms are shown; therefore be on the safe side and have your herd tested.

culin tests should be applied by experienced licensed veterinarians.

Subject Treated in Detail

Farmers' Bulletin 1069, "Tuberculosis in Live Stock," issued by the United States Department of Agriculture, is now available for general distribution, and treats in detail the detection, control, and eradication of tuberculosis, explaining the accredited-herd or honor-roll plan whereby herds found free of tuberculosis are certified as healthy jointly by State and Federal officials. It also describes the methods of prevention and eradication of this scourge of the livestock world. It presents information concerning the disposal of reactors and explains retesting, the marking of animals for identification, appraisement, and indemnity and other related facts about the cause, control, and eradication of this disease.

Copies may be had by addressing a request to the Division of Publication, United States Department of Agriculture, Washington, D. C.

POOR DIAGNOSIS A DANGER IF LAYMEN TREAT ANIMALS

The tendency of laymen to engage in the diagnosis and treatment of diseases of live stock is in a great many instances resulting in losses of animals through inability properly to recognize ailments in time to apply needed treatment, or through applying remedies not indicated in the specific cases. This is particularly dangerous in the handling of infectious and contagious diseases where not only the original herd is at stake, but where, through the spread of infection, other animals may become exposed and infected.

In the work of controlling hog cholera, for instance, perhaps the greatest hindrance has been the tendency of farmers to attempt the diagnosis and treatment of their own herds, or else to call in an untrained layman who frequently does not recognize the disease or advises the wrong procedure in the handling of the outbreak. According to experts of the United States Department of Agriculture it is not always an easy matter to recognize hog cholera, as symptoms are sometimes obscure. Other ailments of swine, such as pneumonia, worms, and tuberculosis, at certain stages of development, somewhat resemble hog cholera. Accordingly, training and experience are required to distinguish between these and hog cholera.

Investigation Should Precede Diagnosis

The practicing veterinarian should acquire all possible knowledge pertaining to control and suppression of hog cholera. Of late many complications associated with the disease have created a multiplicity of opinions among those who claim to understand the various ailments of swine, and even within the veterinary profession hasty judgment has in some cases led to losses which could have been avoided through a careful consideration of facts, proper diagnosis and treatment. This should emphasize the necessity for the study of cases, including the history, environments and circumstances involved in an outbreak, before attempting to decide on the cause of trouble. Then comes the physical examination of the animals. Look for abnormal action, breathing, gait, appetite, digestion and other functions. Next, take the animal's temperature with a good, reliable thermometer. Even then positive diagnosis is not always possible until a post-mortem examination has been made, which means an examination of the various organs and parts of the body after death.

Unskilled Treatment May Cause Great Loss

It is evident that all swine-producing localities should have someone available whose services, based on training and experience, are reliable in detecting and prescribing for diseases of live stock. And farmers, should realize generally that they can not afford to jeopardize their herds by attempting to administer treatment which requires a certain amount of technical application. It is better to call a qualified veterinarian than to run the risk of losing valuable animals, to say nothing of the possibilities of causing a widespread epizootic outbreak of a destructive animal disease.

AMERICAN CHEESE WINNING CONFIDENCE OF EUROPEANS

That the factory system of cheese making developed in the United States has greatly stimulated cheese production in practically every country of the globe is indicated in a survey of the cheese industry of this country and abroad, recently completed by the Dairy Division, Bureau of Animal Industry, of the United States Department of Agriculture. One interesting feature of the survey is that relating to the effect of the "filled" cheese production which was developed to a limited degree in the United States between 1870 and 1905. This cheese sold as genuine cheese and practically destroyed the confidence of European purchasers in the quality of cheese from the United States. Only now are European buyers beginning to regain confidence in the American product, so badly was their faith shaken by the short-sighted policy of a relatively small number of producers who exported the "filled" variety.

In 1880 the United States was the greatest cheese exporting country in the world. In 1918 five countries exceeded the United States in exports. The cheese exported from Europe is of special types, while that from Canada, United States, Argentina, New Zealand, and Australia is largely of the Cheddar type. Countries exporting those varieties of cheese which are used for savory purposes appear to have enjoyed a continuous export demand. The variations in their exports are not so marked as the variations of the exports of those countries, including the United States, that have made the Cheddar type of cheese.

In the last half century the annual consumption of cheese in the United States has been less than 4 pounds per capita, and has never reached 5 pounds per capita as a national average. Speaking generally, the per capita consumption has been less in countries using only a few varieties than those where numerous varieties are used.

In the last half century the production of farm-made cheese in this country has practically ceased, while factory cheese, which has taken its place, now exceeds 300,000,000 pounds annually, about three times the highest figure ever reached by cheese made on the farm. The United States Department of Agriculture has prepared for free distribution Department Circular No. 71, which contains simple charts, together with interpretive comment, setting forth in detail these and many other facts about cheese.

GREAT 1920 ROAD PROGRAM

David F. Houston, Secretary of Agriculture, in his annual report, calls attention to the fact that the 1919 program for Federal aid road building is greater than any previous annual road-building accomplishment in this country. It is so great, in fact, that it undoubtedly will be necessary for many of the States to postpone until 1920 the expenditure of the Federal funds, because of the necessity of developing experienced contracting and engineering organizations from the stagnant conditions brought about by the war. Under the terms of the Federal aid road act, the apportionment to a State for any one fiscal year remains available for expenditure until the close of the succeeding year. It is estimated that funds already provided will be sufficient to finance next year a program more than four times greater than any that has ever been undertaken.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

GOOD FORESTRY PUTS PROFIT IN FARM TIMBER

An understanding of the elementary principles of farm forestry will enable the farmer to market his timber far more profitably than it is done on the average farm. In the Southern States, and in many other sections of the country as well, high-grade logs of such trees as white oak, yellow poplar, red gum, ash, cherry, and black walnut can usually be sold in carload lots direct to manufacturing plants, even though these are located at some distance. Many local log-using plants buy in lots as small as a wagon or truck load. In the South clear logs of white oak and yellow poplar 16 inches and up in diameter are most profitably sold to sawmill plants especially equipped for quartering and veneering woods. High prices at loading points make it wasteful to put such logs to ordinary use at home.

Large quantities of pine are cut and sold by southern farmers for paper pulp wood. Yellow poplar and cottonwood, red gum, tupelo, and others in less amounts are used for the same purpose, according to forestry specialists of the United States Department of Agriculture. The wood must be peeled and is usually marketed in 4-foot lengths and 3 to 10 inches in diameter. Pulp wood is sold by the cord, and the prices usually range from about $4 to $6 for pine and from $5 to $9 for poplar, cottonwood, etc.

Railroad ties have long been a standard farm timber product. As a rule, however, the price represents only fair wages for cutting, hewing, and hauling, with little return for the timber itself. For example, a tie 7 inches by 8 inches by 8½ feet long, if sold at 50 cents, when the items in the cost of manufacture are taken into account, would have a value equivalent to the same amount of lumber valued at $16.50 a thousand board-feet. This is a low figure for white oak. It is often a mistake to cut a young tree for one small tie when in a short time the tree could produce two ties.

PURE-FOOD SPECIALISTS WATCHING "RAINBOW" SUGAR

That all samples of so-called "rainbow" sugar so far examined by the Bureau of Chemistry have been found to be colored by harmless dyes is the statement of the United States Department of Agriculture, whose pure-food experts began testing samples of this product soon after it appeared on the market. Repeated inquiries coming to the bureau from many parts of the country seem to indicate that considerable quantities of this sugar have been supplied to grocers.

The department states that in accord with the provisions of the food and drugs act it will continue to examine samples of this tinted product to ascertain whether or not harmful dyes are used in the future. Only colors known to be harmless have been used in the samples tested and under the food and drugs act their use can be continued so long as they do not conceal inferiority. The sugar so far examined is harmless, sound, and not inferior, so that the practice of the refiners does not conflict with the provisions of this law.

The method employed in tinting the sugar examined is relatively simple and adds very little to the cost of the product and nothing to its food value. Refiners state that the shortage of sugar has created an opportunity to place on the market considerable reserve stores of this colored product which ordinarily is used only for confections. They deny that they have colored their stocks of white sugar in order that a higher price might be demanded for it.

WHY THE BAND PLAYED "DIXIE" AT LIVE-STOCK EXPOSITION

When the Hereford bull, Point Comfort XIV, won for the South the grand championship for the breed at the International Live Stock Exposition of 1913, many northern people felt that the occurrence was a "fluke," which was not likely to be repeated often.

But the record of the International Live Stock Exposition held at Chicago, November 29 to December 6, demonstrated the possibilities of the South as a live-stock producing section in a remarkable way. Nine grand championships were won by breeders south of the Ohio River, as follows: Shorthorn bull and cow, Hereford bull, Aberdeen-Angus bull, Percheron mare, Duroc Jersey boar, Poland China sow, and Hampshire ram and ewe.

Not all of these animals were actually bred on southern farms, but the fact that they were shown from southern herds is an illustration of the progressive spirit of the southern breeders, and those which were bred and raised on southern farms show clearly that the South can produce as fine breeding stock as any other section of the country, according to live-stock specialists in the United States Department of Agriculture.

In addition to the winnings in the live-stock judging, the college judging team from the Texas Agricultural and Mechanical College won first in the students' judging contest, and the team representing the Texas agricultural clubs won second by one point only in the noncollegiate judging contest.

GROWING FRUIT AT HOME EXPLAINED FOR BEGINNERS

Well-ripened sound fruit is healthful. It is also a valuable food. It should form a part of every meal, fresh when possible, or dried, canned, or otherwise preserved.

Home-grown fruit is desirable—

Because it reaches the family fresh and in the best possible condition.

Because the family has fruit of which it would often be deprived if it had to be purchased.

Because, if the proper varieties be selected, a continuous supply of fruit of superior quality may be secured, regardless of market prices.

Because any surplus may be sold without difficulty, or may be canned, evaporated, or otherwise conserved for use when fresh fruit is not available.

Because the care of the home fruit garden provides for spare time congenial and profitable occupation which is in reality recreation for those who enjoy seeing things grow.

Information that will be of practical help to the beginner in fruit growing is furnished in concise form in Farmers' Bulletin 1001, "Growing Fruit for Home Use," recently issued by the United States Department of Agriculture.

This bulletin, which will be sent free on request, deals with the widely grown temperate-climate fruits, such as the apple, pear, peach, and plum. Lists of desirable varieties of these fruits are given for the different parts of the

Because of the number of fruits considered and the territory covered, cultural directions are necessarily brief, but they cover the most important general points.

FORESTS WILL BE EXHAUSTED UNLESS REMEDY IS ADOPTED

Rate of Depletion Probably is Three Times Annual Growth

Federal and State Action to Save Lumber Sources is Advocated in Forester's Report—Suggested Program Outlined

The rate of depletion of the forests of this country is more than twice, probably three times, what is actually being produced by growth in a form serviceable for products other than firewood. Consequently, high prices of lumber are not wholly due to increased costs of production. An important factor is the ever-retreating sources of timber supply. Already the supplies of all the great eastern centers of production are approaching exhaustion, with the exception of the South, and even there most of the mills have not over 10 to 15 years' supply of virgin timber. Already the southern pine is being withdrawn from many points as a competitive factor and its place taken by western timbers. This inevitably results in added freight charges, which the consumer must pay.

Remedy Outlined in Report

These facts are called to public attention in the annual report of the forester of the United States Department of Agriculture, recently published. Their presentation is accompanied by a plea that the Nation adopt an enlarged program of public acquisition of forests by the Government, the States, and municipalities, and protection and perpetuation of forest growths on all privately owned lands which may not better be used for agriculture and settlement.

In the early years of the present century it looked as though the management of forests as permanent, productive properties might be voluntarily undertaken by private owners on a large scale, but since then the situation has materially changed. The need for the adoption of an enlarged program of acquisition, the United States Department of Agriculture points out, has become increasingly urgent. More than 20 years ago the Division of Forestry, as it was then called, offered to give advice and assistance to private timber owners who might wish to consider applying forest management to their properties. By the middle of 1905 requests had been received for the examination of private holdings, large and small, comprising in all 10,900,000 acres of land. Many of these requests were from large lumber companies and other owners of extensive timber tracts. On the strength of the showing made by the preliminary examinations, a number of these large owners entered into cooperative agreements for the preparation of working plans.

Nation and States Must Join

But private forest interests failed to follow up the beginning, and the Federal Government and the States, in the opinion of the Department of Agriculture, must join hands to work out a program that will correlate public and private efforts looking to the protection and proper administration of forests. The function of the Federal Government, in addition to handling the National Forests, it is suggested, would be to stimulate, guide, and coordinate State action and conduct necessary investigations regarding the best methods of forestry, to assist the States in the classification of land, and to harmonize action between the different States. The States would also handle public property owned by them and they would have a further direct responsibility in connection with the protection and perpetuation of private forest lands.

With regard to the Federal attitude toward private forestry, it is suggested that the Government would work primarily through State agencies. To initiate the proposed policy, a Federal law would be necessary authorizing the Government to cooperate with the States in bringing about the protection and right handling of forest lands within their borders and providing means for such cooperation.

SOUTHERN OPERATORS MAY SEEK WESTERN TURPENTINE

The long-leaf pine forests of the South are becoming so rapidly depleted by heavy cuttings of timber and destructive methods of turpentining that many turpentine operators who have depended on this species for naval stores are now turning their attention to the West as a possible source of such stores when their present stands of timber are no longer productive. It is quite possible that a method of turpentining similar to that carried on in the Florida National Forest, under the supervision of the Forest Service, can readily be used in the West. According to this practice the largest flow possible without injury to the trees is obtained by following a number of slashings with several seasons of rest. The cutting is done in such a way as not to impair the timber value of the trees.

The promising results obtained by the Forest Service in applying these conservation methods to long-leaf pine in Florida led it, as early as 1911, to investigate the extent to which western yellow pine, so abundant in the United States, could be utilized in meeting possible future needs. Tests show that these trees can be turpentined successfully and that a satisfactory product can be obtained. However, certain circumstances, such as the shortage of labor and remoteness of shipping facilities and markets, raise some question as to whether turpentining can be undertaken on a commercial basis. With a view to investigating the problem thoroughly, district representatives of the Forest Service will be glad to cooperate with any private concerns desiring to investigate the problem thoroughly.

In the South much of the work of slashing the trees and gathering the resin is undertaken by workers especially adept at this sort of task. Slashing consists in making V-shaped cuts in the side of the trunk from which the gum flows into a cup hung beneath. The contents of the cups are gathered from time to time and distilled. To undertake turpentining in the West will involve the importation of a large number of skilled laborers, or the training of men living in the region.

A question yet to be exactly determined is the extent that western yellow pine can be turpentined without reducing the yield of timber. Since this is the first consideration of the Forest Service, any inquiry undertaken by the Forest Service representatives and private interests would give careful consideration to this point.

Whether or not western stands of timber, particularly in the high altitudes where the warm season is short and the flow of resin necessarily limited, will yield enough resin, without excessive slashing, to make turpentining worth while, is yet to be determined. It is certain that the Forest Service will advise no practice approximating the extravagant tapping of the trees year after year that obtains on private land in the South. This method not only injures the tree for timber purposes but causes their premature death.

COOPERATIVE WORK IN OKLAHOMA

The Oakman Club of Pontotoc County, Okla., formed a Duroc Jersey Swine Breeders' Association last year under the direction of the county agent. They have a committee which decides whether a pig is entitled to registration and to be sold through the association. Last year they issued a catalogue giving the records of their animals and put on a pure-bred swine sale. The county officials charter a car and ship their surplus fat hogs cooperatively.

RESEARCH RESULTS REPORTED FROM BUREAU OF CHEMISTRY

Work with Foods, Drugs, and Other Products Outlined by Chief

Staff Depleted by Outside Demand, but Accomplishments Compare Well with Previous Years—Activities Not Yet Wholly Normal

Enforcing the Federal food and drugs act, developing methods in food distribution, finding uses for waste products, aiding industrial development by working out technological processes, and reporting the results of chemical research are features of the work of the Bureau of Chemistry, U. S. Department of Agriculture, during the last fiscal year, as outlined in the recently published report of the chemist and chief of bureau, Dr. Carl L. Alsberg.

Although the staff of the bureau was greatly depleted because of the unprecedented demand of the industries for experienced chemists, the volume of the work and the results accomplished in the technological and regulatory activities of the bureau compared favorably with previous years, says the report. A larger number of prosecutions and seizures were effected than in any previous year. The constructive research work of the bureau has not yet returned to normal because it was considered advisable to complete certain war problems which will have a bearing on peace-time industries, and because of the loss of a number of the more experienced research chemists. Nevertheless, the momentum of the bureaus' research organization has been sufficient to produce a larger number of publications than ever before.

Enforcing the Food and Drugs Act

Slack-filled cans, decomposed eggs, fake egg substitutes, butter containing excess water, glue sold as edible gelatin, olive oil adulterated with cheaper oils, frozen oranges, canned tomatoes adulterated with water, "soaked" oysters and scallops, cocoa adulterated with cacao shells, adulterated and misbranded vinegar, falsely labeled and adulterated stock feeds, and misbranded medicines were among the violations of the Federal food and drugs act on which 1,052 seizures and 843 criminal prosecutions, inaugurated during the year, were based. Other products involved in the regulatory activities because of adulteration or misbranding, or both, were beverages, extracts, flavors, candy, coffee, tea, food colors, milk, cream, crude drugs, pharmaceutical preparations, fruits, jams, jellies, lard, meat, poultry, nuts, sirups, spices, vegetables, and water.

Much of the time of the regulatory force of the bureau was taken up with the prevention of the sale to the consumer of stale or tainted canned salmon. This work involved the examination in detail of the vast surplus stores of canned salmon held by the Army before they were permitted to be turned back into the ordinary channels of trade.

Of 1,019 cases of all kinds reported to the department as terminated in the courts during the year only three were reported as decided unfavorably to the Government. A number of important food-inspection decisions were issued. They included definitions and standards for soda water flavors, soda water, milk and cream, and rulings regarding colors in food and marking the quantity of food in package form.

Improving Food Distribution

Progress is reported in the work of the bureau on developing better methods for handling, packing, shipping, and storing poultry, eggs, and fish, in order to reduce losses while in the channels of trade from producer to consumer, and to bring about more economical distribution of these perishable products.

It has been demonstrated that the use of 100-pound boxes in place of barrels for shipping fresh fish prevents damage and loss from the pressure and bruises to which fish in the bottom of barrels are subjected. Producers were instructed in the packing of fish, the loading of refrigerator cars, and the building and equipment of fish freezers. Carload shipments of fish from Florida to Savannah, Louisville, Nashville, and Indianapolis were supervised. Better methods for handling salmon in order to reduce spoilage from bacterial invasion are being developed. Information on the preservation of Pacific coast sardines by smoking has been disseminated. Many experimental shipments of fish have been made to determine the chief causes of spoilage and how to eliminate it.

Instructions regarding accuracy in the commercial grading of eggs have been issued. Efficient methods and apparatus for candling eggs on a commercial scale have been devised. The results of the studies on the preservation of eggs by cold storage have been published. Through cooperation with the Railroad Administration there was brought about a marked reduction in the breakage of eggs during transportation.

Conserving Foods

Constructive methods for conserving foods from the season of plenty to the time of scarcity and means for preventing loss from spoilage have been developed as the result of research and experimental work. Special attention was given to the development of an industry for drying fruits and vegetables with the view of improving the attractiveness and the quality of the product. Commercial methods and machinery for drying have been studied. Laboratory investigations on an extensive scale were undertaken to compare the nutritional qualities of dried products with those of canned and fresh material. The results have been favorable. The drying work on the whole has been of practical assistance in establishing a sound permanent industry.

Work on the preservation of foods by fermentation and brining has been continued. Studies are under way to improve the manufacture of pickles and prevent the losses that occur at present because of softening of the pickles during storage. Improved methods for the manufacture of sauerkraut have been developed in cooperation with manufacturers.

The first complete and critical survey of the fat and oil industry of the United States was made in cooperation with the United States Food Administration, and the results, with statistics of the industry, have been published.

For the purpose of conserving sugar a number of substitutes were investigated and methods developed for using various substitutes in the manufacture of soft drinks. A valuable service was rendered the soft-drink industry, since many bottlers who were unable to secure sugar were saved from disaster. Some of the substitutes proved to have such merit that they probably will remain in permanent use. Sugar substitutes for use in baking and cooking were also recommended.

Quite a different form of food conservation carried on by the bureau was the work to prevent dust explosions in grain elevators and mills. In the past large quantities of grain and flour have been destroyed, and many lives lost from disastrous dust explosions. Methods for preventing such explosions have been worked out. Five thousand six hundred plants were visited for the purpose of having the safety methods adopted. As a result of this work there has been a marked reduction in the number of fires and explosions.

Finding Uses for Waste Products

Corncobs, one of the largest waste by-products of farming, may now be utilized as the result of processes which have been worked out and patented for the preparation from corncobs of adhe-

sive gum and of the rare sugar xylose. Processes for converting xylose into substances which may be useful commercially have been patented and published.

Cull oranges and lemons not suitable because of size, shape, or defects for shipment as fresh fruit are used for the manufacture of many useful foods and chemicals. A citrus by-products laboratory operated by the Bureau of Chemistry at Los Angeles, Calif., has worked out new methods for the manufacture of marmalade, vinegar, candied peel, juice, citrate of lime, citric acid, and other products. As the result of this work a profitable citrus by-products industry has been established on the Pacific coast. Work is now under way in Florida.

Work to improve existing methods for the manufacture of starch from cull and surplus potatoes is underway. Methods for the manufacture on a small scale of sirup from cull sweet potatoes have been published. The curtailment of distilling and brewing, together with the war-time restrictions placed upon the consumption of sugar, seems to have stimulated the production of barley sugar or maltose, as well as that of maltose sirup. Since the extension of the uses of such material is a matter of some interest to the producer of barley, practical studies on the uses of maltose sirup in candy manufacture have been undertaken. Preliminary results indicate that perhaps large quantities of maltose sirup can be employed in this way.

Aiding Industrial Development

Practical results are reported in work to aid in the development of the production of dyes, leather, naval stores, paper, fabrics, and insecticides in addition to the technological work on foods. New processes for the manufacture of sensitizing dyes have been discovered and patent applications filed. A new dye of great value to physicists has been prepared. The new method for the production of phthalic anhydride, a valuable dye intermediary, is in successful commercial use. A new photographic developer has been produced and the process published.

Results of investigations of the best methods for preparing hides and skins for the manufacture of leather have been published. A bulletin on the care of shoes and harness is in preparation. Work is under way on the waterproofing of leather, on the relative absorption of oils and greases by wet and dry leather, and on the testing of materials for increasing water resistance of sole leather. Specifications for leathers for various purposes have been prepared.

Reports on the production of naval stores, including gum rosin and gum turpentine, wood rosin and wood turpentine, have been published. Specifications on the properties, the sampling, and the laboratory examination of turpentine have been prepared. The study of the waterproofing, mildewproofing, and fireproofing of fabrics for farm use has been continued.

Equipment to produce insecticides and fungicides on a semicommercial scale has been secured in order that the manufacturing processes may be improved and that new types of useful insecticides and fungicides may be devised. Methods for the manufacture of calcium arsenate have been published.

The report of the chemist also mentions many scientific investigations relating to drugs, food nutrition, and methods of analysis. The results of research, in so far as completed, have been published in various technical journals.

EXCESS WOOL PROFITS BEING COLLECTED BY DEPARTMENT

(Continued from page 1.)

hands and was itemized on their books either as purchases or consignments.

Collection Proceeds with Audit

The second division of the work, that of auditing the reports received, is progressing as rapidly as the force available will permit, and the collection of excess profits proceeds as the audit of each separate case is completed. Many of these individual reports contain a record of thousands of transactions, and the auditing process is correspondingly slow. Until the audits of the reports of approved dealers are completed, the department will not be able to complete its list of unauthorized dealers. This fact will delay the completion of the collection of excess profits.

As rapidly as excess profits are received from any dealer they are apportioned to the individual growers to the extent to which their identity is disclosed, but the actual payments are being withheld until the collection of excess profits is more nearly completed, in order that practically all the growers may receive their checks at approximately the same time.

The reports of many country dealers show no excess profits. Relatively small amounts of excess were made by most of the others and the refunds to individual growers will, in many cases, be very small. In other cases, the refunds will amount, in the aggregate, to several cents per pound upon all the wool which the dealer handled.

The greater part of all excess profits appears to have accumulated in the hands of certain distributing center dealers who purchased largely through direct agencies in producing sections. Many of the distributing center dealers, who handled wools on consignment only and whose profits were necessarily limited to the commissions paid by the Government, appear to have no excess. In the discussion of this subject in the press, the fact that nearly two-thirds of the wool clip of the country is so-called territory wool from the western and Pacific Coast States, which was handled almost exclusively on consignment, and therefore furnished no opportunity for the accumulation of excess profits has, to some extent at least, been overlooked.

FEEDING SUGAR-BEET TOPS AS SILAGE RECOMMENDED

Beet-top silage is well suited for use by the dairyman or the feeder of beef cattle and sheep. When it is fed for the production of beef or mutton, the hay requirements may be reduced 50 per cent. The warm, succulent silage seems to stimulate the appetites of the animals, causing them to consume and utilize larger quantities of feed. Most beet growers estimate that beet-top silage has a value about one-third to one-half that of alfalfa hay.

These points are discussed in detail in Farmers' Bulletin 1095, "Beet-Top Silage and Other By-Products of the Sugar Beet," which was recently issued by the United States Department of Agriculture. This bulletin advocates the use of beet-top silage to aid in meeting the shortage of hay and other forage. It illustrates good methods of constructing pit silos and gathering and siloing the tops, and makes other important suggestions in regard to feeding the silage, molasses, and pulp, based largely upon reports of beet growers and stock feeders.

"Beet pulp and molasses, by-products which have an established value with stock feeders, should be fed with a moderate allowance of hay or other feed in order to make a balanced ration," the bulletin says.

"At the present price of beet molasses many feeders are finding a mixture of molasses with hay or with pulp to be profitable. This furnishes a variety and stimulates appetite when fed in regulated quantities.

"In feeding beet-top silage, about 30 pounds per 1,000 pounds weight for cattle and 3 pounds per head for sheep each day seem to be most satisfactory.

"Animals not accustomed to beet-top silage should be given a small quantity at first and the feedings gradually increased until the normal ration is reached."

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

FARM BUREAUS REVISE COUNTY WORK PROGRAM

Pennsylvania has just completed a successful series of district conferences of county agricultural agents, farm bureau officers, and extension specialists to discuss the possible lines of work that might be included in the 1920 programs of work of the various county farm bureaus. The attendance of farm bureau officers was gratifying, in some cases as many as six or more farm bureau representatives from a single county being present. As a result of the conferences the farm bureau officials received information as to possible ways of solving the various county problems, and the assistance available from the college specialists.

Immediately following the district conferences the county agricultural agents and farm bureau officers will assist the committees in working out community programs of work which will be brought together into county programs. The county farm bureau programs will then be welded into a State extension program at the annual conference of all extension workers called at the State agricultural college the last week in January.

ISSUING LIVE-STOCK DIRECTORY

The farm bureau of Gage County, Nebr., is issuing another live-stock directory, and the live-stock association, which is composed of farm bureau members, will stand sponsor for individual signs for each member breeding purebred stock. The signs will bear the member's name and the type of his horses, cattle, swine, or sheep. It has also been recommended that the association furnish signs for each farmer who will conform to certain requirements, the most important being his pledge to use only purebred sires.

WILL GROW MORE WOOL

Movement of stock in Montana and Wyoming because of drought conditions resulted in the shipping of a large number of good rams to the Omaha market. Omaha commission firms have informed their farmer patrons concerning the desirable qualities of these breeding animals, and by correspondence have sold many of the rams, the animals being shipped to the farmers by express, as well as being transported by motor truck when the distance is not too great. These farmers have purchased rams and ewes with the idea of raising wool and mutton on the high-priced land adjacent to the Omaha market.

THE AGENT'S WEEK

His Life is Joy, His Years Are Play, His Week a Happy Roundelay

THE COUNTY Agent's life is joy,
His year is filled with play,
His months are fun without alloy,
His weeks a happy roundelay—
But just to keep himself in trim
He works a bit each day.

MONDAY he tells what plans are good
To make a fertile farm;
He tries to make it understood
What keeps the crops from harm;
He holds three meetings in the fields—
But finds life all a charm.

TUESDAY he helped to drain a field,
Showed where the tiles are led;
Gave suggestions for increased yield
And told how stock is fed;
Organized a breeding club—
But spent some time in bed.

WEDNESDAY he brought a specialist
To help a man with sheep;
Got figures for a census list;
Arranged to purchase cheap
A lot of lime in carload lots—
But got a chance to sleep.

THURSDAY he gave some blueprints out
For a barn from ridge to floor;
Showed how to ring a porker's snout
And how to keep a score
Of points in judging purebred stock—
Then slept a little more.

FRIDAY he helped to spray some trees;
He told which spuds are best;
He showed the way to hive some bees,
And how to kill a pest;
He warned against three wildcat schemes—
But got a bit of rest.

SATURDAY, like the rest of the week,
He made an early call;
He planned the use of a rapid creek
For power from its fall
To light farm homes for miles around—
But did no work at all.

SUNDAY he washed the flivver clean,
Then sat within his pew,
Thankful that on this day serene
He'd rest, like me and you—
Except to write reports and such
He had no work to do!

—*Bristow Adams.*
In New York Extension Service News.

SUNFLOWERS FOR SILAGE

During September members of the county farm bureau of Union County, Oreg., held a sunflower inspection tour to examine the comparative growth under similar conditions of the sunflower and corn. The tonnage as an average was estimated from one-third to one-half greater in the case of sunflowers than in corn. In all cases the sunflowers seemed to be doing well and the growers were quite well satisfied. In some sections of this county the production of corn for silage purposes is questionable because of the early frosts; and in these places sunflowers will replace corn for silage.

WILL BUILD SALES PAVILION

The plans for the new sales pavilion of the Plymouth County (Iowa) Farm Bureau provide for a building 43 feet in diameter with a 16-foot wall. The sales ring will be placed across one wall and the rows of seats will be arranged in a circular manner corresponding to the curve of the sales ring. All of the breeders in the county have shown a great deal of interest in this project and from those who were apparently uninterested voluntary membership payments have been received.

A HOMEMADE SILAGE CUTTER

The county agricultural agent in Navajo County, Ariz., reports visiting a stockman who was filling a pit silo with a homemade contrivance. The knives of the cutter are homemade and set at an angle to the drive shaft after the fashion of a lawn mower. The driving gear was made out of the gear of an old mower, and belted to a gas engine. A large mower wheel served as a fly wheel. At little expense the owner is filling his silo and preparing an abundance of feed for winter use.

LIVE-STOCK BREEDERS' DIRECTORY

Members of the farm bureau in Audubon County, Iowa, who are also members of the County Pure Bred Livestock Breeders' Association have issued a 44-page directory advertising the purebred stock of this association. Out of the 44 pages, 26 full-page advertisements and 18 half-page advertisements were sold, which more than paid for the cost of printing and mailing the 1,500 copies. The cost of printing and mailing was $158.75. This county breeders' association now has a membership of 665.

Fruit Varieties and Names Make Problems That Department Workers Are Attacking

From whatever standpoint one may approach it, "the variety" looms large in the fruit industry. The grower wants particular sorts—fruits having certain desirable and known characteristics—in order that he may supply certain trade demands, or be able to harvest at particular times, or in some other way receive the benefits that are to be derived from fruits possessing certain qualities or characters. In a similar manner, the trade—the commercial handlers of fruit—must take note of varietal characteristics; otherwise, faults will develop in their business that will be disastrous. Poor-keeping varieties will be placed in cold storage when only long-keeping varieties should be stored. Tender-fleshed varieties will be used for long-distance shipment when only varieties having good shipping qualities should be so handled. Some varieties have gained commercial prominence very largely because of their good shipping qualities when they were seriously lacking in dessert or other qualities.

The consumer does not know much about variety names as a rule, but if the retailer with whom he trades would take pains to supply always good dessert varieties when fruit is wanted for dessert purposes, and good cooking varieties when they are desired for cooking, every one interested, from the grower to the consumer, would be benefited thereby. However, as a rule, by the time the fruit reaches the retailer, apples are simply "apples," peaches are just "peaches" and plums are "plums" without much regard to the use for which the consumer wants them. Even with such fruits as strawberries, blackberries and the like there are variety adaptations from the consumer's standpoint but they are not always easy to give full recognition even if one were making an effort to do so.

When Wrong Sorts Are Planted

To return to the grower. After careful study of varietal characteristics, he orders from a nurseryman, for example, the varieties of apple and peach trees that he has decided will give him the fruit that will best supply the trade to which he is to cater. He waits three or four years after planting for the peach trees to come into bearing and perhaps six or eight years for the apple trees to bear, only to find perhaps that half the varieties are not the sorts he ordered even though the trees, when he received them from the nursery, were labeled according to his order. The misnamed varieties may not fit at all into the grower's plans for marketing and are, perhaps, practically worthless to him.

It requires no argument to convince one that "the variety" is important to the grower, once the problem is stated. The misnaming of varieties in such a case may be due to carelessness, to indifference, to clear sheer dishonesty, or to entirely honest errors. The results so far as the grower is concerned, however, are the same in any case. The grower, in studying varieties for the purpose of deciding what ones he should plant, possibly finds an apple in his neighbor's home orchard that was planted many years before, which has qualities that fit his needs but no one to whom he appeals knows its name. He therefore is unable to include it in his order of nursery stock because the variety is without designation that is common to him and the nurseryman with whom he deals. What is he to do?

Where Fruits Are Identified

His State experiment station may be able to identify the desired variety, if specimens of the fruit are sent there. Or it is any grower's privilege or the privilege of anyone who may be interested, to mail specimens of fruits to the United States Department of Agriculture for identification. However, neither the experiment station nor the Department of Agriculture experts have occult powers for making fruit variety identifications. It is only their wider study of varieties and their intimacy thus gained, as compared with the individual grower, that enables them to render effective service in this connection. Many instances occur where such service can not be rendered, simply because the experts do not know the variety in question.

True, these experts have available the best literature on fruit varieties, and for many years the pomological experts of the Department of Agriculture and of the experiment stations have been accumulating fruit variety descriptions and making illustrations of varieties. These are of course helpful. But anyone who has ever tried to identify a fruit variety with which he is not familiar by the use of "word descriptions" knows how difficult it is to reach a sure decision. A good illustration may help some, but even the best available are usually lacking in the necessary accuracy or details to clear up all doubts. The difficulty is in expressing in words the minute details of a variety which one sees and "feels." Therefore when one has described a variety according to the best formula available, it may apply equally well, almost, to a number of other varieties closely similar to the one to which it was intended to apply.

Another source of confusion in varieties is the use of synonyms—nicknames, as one may say—instead of the correct name which usually is the one under which it was first introduced or by which it became locally well known perhaps before it was introduced to the trade. For instance, the name "Sheepnose" has been applied and published at different times and places for at least 10 different varieties of apples. Suppose a grower who knew an apple in his boyhood as "Sheepnose" orders trees under that name, expecting them to be the variety he was familiar with in his boyhood, and nurseryman has another variety under that name. The nurseryman supplies his "Sheepnose" in good faith but obviously the grower is doomed to disappointment when the trees bear, and probably blames the nurseryman therefor.

Simplifying Fruit Names

In cooperation with the American Pomological Society, the Department of Agriculture has been working for many years with a view to simplifying the names of fruit varieties, to determine what are correct names and what are synonyms, and to promote the use by nurserymen in their catalogues, by fruit growers and the public generally, of correct variety names. It is only by so doing that confusion in variety names can be eliminated. When correct names are used a nursery man in California will know exactly what variety of apple a correspondent in Maine may be asking about, and a peach grower in Texas can talk understandingly with one in Michigan about varieties.

In the matter of fruit-variety names the "Rules of Nomenclature," frequently referred to as the "code" of nomenclature adopted in 1903 by the American Pomological Society, govern in the work along this line done by the Department of Agriculture. In fact this code constitutes the only recognized guide in America in the naming of fruit varieties.

Moreover, department workers are giving critical consideration to the possibility of making better variety descriptions and illustrations than those usually made heretofore. This work has progressed further at the present time with the apple than with any other fruit. It is expected that in due course after the work is completed the results of the studies now being made will be published by the Department and thus be made available for other workers in pomology and the public generally.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Forest Fuel for Empty Coal Bins.

To relieve as far as possible the serious fuel crisis that has existed in the West, as elsewhere, the Forest Service, with the approval of the Secretary of Agriculture, has authorized the district foresters to cooperate fully with all local and State fuel administrators by making available at once all wood and fuel material. Waiver of all restrictive regulations has been authorized. This means, for instance, that on forests where no green material has been granted under free use, such material has been made available to prevent suffering or hardship; also that free-use material has been made generally available, and that the question of residence of the permittee or his qualifications is not the governing factor in issuing a permit.

This action of the Forest Service, it is believed, will do much to relieve the serious conditions existing in regions deprived of bituminous coal.

Lessening Loss of Perishables.

Decay in the transportation of potatoes, cantaloupes, lettuce, tomatoes, spinach, strawberries, and onions is primarily due to faulty methods of handling and refrigerating, according to the Bureau of Markets, United States Department of Agriculture. Marked reductions in losses have resulted from more careful methods of digging and grading potatoes, suitable temperature in refrigerator cars and storage houses, and by improvements in the handling of lettuce, such as the more complete removal of the lower leaves of each head in harvesting, and shipment in ventilated crates instead of closed hampers. It was found that the decay of strawberries in transit results largely from avoidable injuries inflicted in picking and washing and from inefficient refrigeration.

Vegetables from the South, shipped in properly constructed cars, cooled 1 degree an hour faster than those forwarded in cars of the ordinary type, and deteriorated less than one-third as much, the Bureau reports.

Canning Her Way to College.

Tin cans, and plenty of them, all filled with fruit and vegetables, are paving the way from country home to college for many a girl these days. In Montgomery County, Miss., lives Effie Ayers, who dreamed of college and who now, by means of her canning-club work, sees her way clear to making her dreams come true. Miss Ayers stands ready to affirm that a canning club can help a girl with college ambitions as much as can a rich uncle with generous impulses. For four years this club member has been a member of one of the canning clubs supervised by the United States Department of Agriculture and the State agricultural college, and for two years of that time she has been the canning champion of Mississippi. Her net profits from her canning work in 1919 were $280.46.

During the first season of her club work Miss Ayers canned 1,500 No. 3 cans. The second year she canned only 800 cans, because the wilt attacked the tomatoes in her locality, but last year 1,100 No. 3 cans were filled, and brought her a profit of $178. This year she canned 900 No. 3 tins. The fruit, soup mixtures, tomatoes, beans, and other vegetables which she cans are grown in her club garden, and the said tenth-acre garden is in a fine state of cultivation. From two rows of beans growing there last summer she canned 198 cans, and sold them for $3.50 a dozen. Besides growing the vegetables for canning, she also supplies the family table from her plot.

This club member shipped all the goods she canned the first two years, but the last two years she has been selling her canned products in the local market where the demand was twice as great as she could supply. Miss Ayers' exhibits of canning and sewing have won her many prizes in both the county and State fairs, as well as several trips.

Two New Animal Pests.

Two animals not much spoken of previously have gained prominence as destructive rodents during the past year, reports the chief of the Biological Survey, United States Department of Agriculture. One is the mountain beaver or sewellel, a curious rodent living in the humid regions of the northwest coast. It was formerly considered harmless, but with the development of agriculture in its region it has become increasingly injurious to crops, particularly small fruits and market produce. Control measures have been devised, and representatives of the department have given demonstrations in Oregon and Washington, where active measures were needed.

The other animal that has come into prominence as a destroyer is the cotton rat, a small rat-like rodent limited to the South Atlantic and Gulf States. Its depredations are principally in connection with sugar-cane in Florida, where experimental plantings within the past two years gave promise of very profitable development. So serious has been the damage by cotton rats, however, that the principal company interested in the development of the sugar-cane industry in Florida has written the department that the success of the industry will be impossible unless some method can be found for successfully controlling the cotton rats. Losses of from 40 to 60 per cent of the growing cane have been reported. The Bureau of Biological Survey, however, announces the determination of successful poisoning methods, and it is believed that, through demonstrations and advice, the growers will be able to control the rats and reduce the losses to a negligible amount.

Bird Population Increasing.

The beneficial effects of the migratory bird treaty act are beginning to be felt. The United States Department of Agriculture, through its Bureau of Biological Survey, has conducted investigations of the breeding areas of ducks in North Dakota and Nebraska. Compared with former years, a gratifying increase of breeding waterfowl, particularly in North Dakota, is evident. The fifth annual series of counts of birds of all species breeding on selected areas in various parts of the United States contained a large proportion of reports showing increases in bird population. The total number of reports received, however, was not large. Many of the persons who had formerly taken part in the annual bird counts were unable, because of extra duties assumed during the war, to find time for the work required by the fifth count.

"Many species of migratory birds," reports the chief of the Bureau of Biological Survey, "have had a marked increase under the existing treaty act. Waterfowl formerly driven to the far North by spring shooting have remained in steadily increasing numbers to breed in localities

where none had previously nested for many years."

Many Desperadoes Hunted Down.

You would hardly think of the United States Department of Agriculture as an agency for hunting down desperadoes, but it is. That the desperadoes happen to be not men but wild animals does not detract either from the adventure or the value of the work. Now and then a wild animal becomes notorious for its exploits in killing live stock. The inspectors of the Bureau of Biological Survey make special efforts to hunt down and kill such animals. A mountain lion that was known to have destroyed $1,000 worth of live stock in one month was killed near Dubois, Wyo., a few months ago. That the animal had eluded many private hunters was shown by the number of scars on the body. Another mountain lion taken in April had killed seven colts during the spring. In the same State a pair of wolves that had destroyed $2,500 worth of live stock was killed, the female by a Government hunter and the male by a private hunter. A ranch owner near Merizon, Tex., reported that within three months he had lost 300 sheep, valued at $3,200, as the result of the depredations of six coyotes. Government hunters, in July, captured all six of the beasts.

But not all of the bad beasts have been disposed of. About 30 very cunning wolves still roam the ranges of New Mexico, causing annual losses to live stock amounting to about $2,000 each. When the department's campaign for destruction of predatory animals began, however, there were between 300 and 400 wolves in the State. The small number remaining, though made up of the most cunning and destructive individuals of the packs, is being steadily reduced, in spite of the fact that the stock of wolves in that State is constantly recruited by stragglers from the mountains of northern Chihuahua, Mexico.

How to Sell Lamb Cuts.

The extent to which the public's habit in meat eating may be influenced by local butchers is illustrated by information received by the United States Department of Agriculture. Fair dealing and good service are the basis by which the sale of lamb carcasses in one locality has been increased four to five times within a few years. Following are the policies responsible for the noteworthy increase:

Selling only lamb—neither mutton nor goat meat—when customers ask for lamb.

Selling mutton as mutton (instead of as lamb), thus enabling customers to make comparisons.

Making special sales of "a good string of fat lambs" at reduced prices, but not with reduced quality.

In the hands of local butchers largely rests changes in the meat-eating habits f the public the information indicates Considering the health of sheep and the nutritive value of meat, a much greater proportion of mutton and lamb might be consumed than at the present time.

Muscadine Grapes Different.

There is a pronounced difference in varieties of Muscadine grapes in their value for the making of fresh juice and other products. This fact has been brought out by the United States Department of Agriculture in its investigations on the utilization of this native type of grape as an addition to the national food supply. The Thomas, says the chief of the Bureau of Plant Industry, in a recent report, is the best of the varieties now commonly grown for unfermented juice and has high merit compared with other varieties for most other uses. Under the cultural and pruning methods used in the experiment at the Pender Test Farm of the North Carolina Department of Agriculture, at Willard, N. C., Muscadines have produced excellent crops when unfavorable climatic conditions have caused other varieties and vines in surrounding neighborhoods to yield little or no fruit.

When to Sow Broom Corn.

After several years of experimentation in the improvement of broom corn in western Oklahoma, the United States Department of Agriculture has obtained results which indicate that the crop should be sown in the first half of May or the last half of June. These seeding periods bring the crop into head either before or after the hot, dry period, which usually occurs about the middle of August in that section. Placing the rows 7 feet apart with the plants twice as thick in the rows gave no advantage over rows spaced 3½ feet apart with the usual stand in the row. A higher yield and a better quality of brush are obtained if harvesting is done while the seeds are in the dough stage. Both earlier and later harvesting have been tried but have given less satisfactory results.

If harvested in the flower or milk stages, the brush has not yet become green and elastic, and if harvest is delayed until the brush is mature, it often has become badly discolored and brittle.

Limit to Citrus Pruning.

Investigations as to the pruning of citrus trees in California, made by specialists of the United States Department of Agriculture, have furnished a clear-cut demonstration that the very heavy pruning practiced by some growers is detrimental. However, a limited amount of pruning wisely done is conducive to fruit production. It appears evident, says the Chief of the Bureau of Plant Industry, that trees propagated from those having a high-yielding record of desirable fruit require less pruning to keep them in good form and in good productive condition than do trees propagated according to ordinary nursery practices.

Against Imported Substitutes.

In the revival of commerce following the signing of the armistice, under disorganized shipping conditions, drugs which were not what they appeared to be came to the United States. Substitution of crude drugs for others better known or for official species has not been uncommon, reports the chief of the Bureau of Chemistry, United States Department of Agriculture. In some cases of substitution the substituted drug did actually have some legitimate use, but the department took the position that release on relabeling alone would not effectively prevent the goods from filtering into the channels of trade and being sold ultimately as the official product. Releases in such cases are made, therefore, only on definite information that the goods will be manufactured by a specified firm into products for which their use is approved.

"Special attention," continues the Chief of the Bureau of Chemistry, "has been given to medicinal preparations bearing statements of therapeutic or curative effect. The printed matter used with each preparation has been carefully reviewed by the bureau's medical staff in Washington, with a view to exhibiting a uniform and consistent attitude toward all such products. Copies of the comments made, with information regarding the labeling, have been transmitted on cards to all the port stations, thereby insuring perfectly uniform action. A distinction has been made between products intended for sale to the general public and those intended for physicians' use which are so labeled as not to affect the general public, properly confining all statements as to therapeutic use to an inclosed circular, leaving the outside label entirely free from such statements."

Rhodes Grass in Imperial Valley.

The attention of an increased number of farmers and ranchers in the Imperial Valley of southern California is being directed by one of the pioneer planters

there to the merits of Rhodes grass which is now being grown in that region successfully, although before 1902 it was unknown in this country. The United States Department of Agriculture, through its specialists engaged in foreign seed and plant introduction, is responsible for the presence of this profitable grass in this country. The specialists brought it directly from South Africa where it had been raised extensively on the ranches of the late Cecil Rhodes and others and after whom the grass is named. The grass has been found particularly adapted to the coastal region of Texas and to northern Florida. If it becomes thoroughly established in the Imperial Valley, this will add another region to its domain of usefulness.

Produce Tons of Sesbania Seed.

During the past year it is estimated that 60 tons of Sesbania seed were produced in the Coachella Valley in southern California. In 1904 this plant was growing by the roadside as a weed, but an investigation by the United States Department of Agriculture revealed its big possibilities because of its leguminous character. Since that year it has been widely cultivated, a principal use being for planting by onion growers immediately after the harvesting of onions in the late spring, thus enriching the soil preparatory to planting in the fall.

COST OF LICE ON HOGS PROVED IN EXPERIMENTS

Lice on hogs are extremely expensive The fact was proved in experiments recently concluded by the Bureau of Animal Industry of the United States Department of Agriculture. It was shown that lousy hogs not only consume more food and make less meat but that they are uneasy or restless, a condition that doubtless lessens the pork-producing abilities of the animals. When not eating, the lice-ridden swine spent most of their time rubbing themselves or running around. If strangers came near they were noticeably excited. This did not hold true of the hogs free from lice.

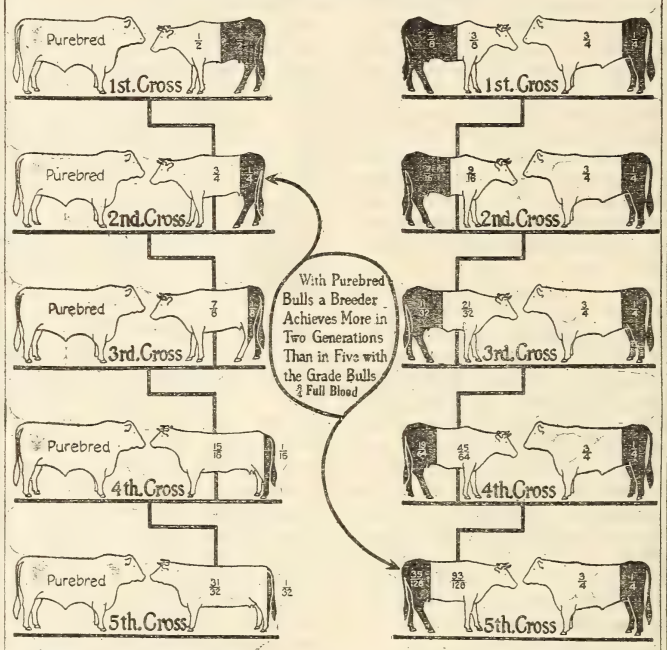
Three experiments, each extending three months or more and with from 20 to 30 hogs as subjects, were conducted. In one experiment it cost exactly $1 a hundred pounds of pork more to feed the hogs with lice than it did to feed the clean animals. In another, it cost $1.50 more, and in the third, $2.94 more. The specialists who conducted the experiments reached the conclusion that the main reason why hogs with lice consume more protein feed is due to the fact that the lice suck the blood from the animals, and the latter must use more feed to replace their losses.

But the lice-ridden hogs can not make up for the blood sucked by their parasites. For instance, at the beginning of one experiment 15 hogs with lice weighed a total of 1,167 pounds, and 15 hogs without lice weighed 1,025 pounds. At the end of the experiment the lousy hogs weighed 2,872 pounds, and the clean hogs weighed 3,150 pounds, although the total feed consumed by the clean hogs weighed only 202 pounds more than that eaten by the animals with lice.

The Department of Agriculture will be glad to supply farmers with publications that tell how to free their hogs of lice.

Purebred Sires and Herd Improvement

See How Rapidly the Proportion of Native Blood (Black Portion) Diminishes When a Purebred Sire is Used.



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SOW ALL RED CLOVER POSSIBLE, GOVERNMENT SPECIALISTS URGE

Special Attention Should Be Paid to Purity of Seed

Important to See That Soil is Not Deficient in Lime—Best Methods of Putting in Seed

During January the question of purchasing clover seed and planning the acreage to be seeded next spring will be under consideration. Clover seed is high priced and scarce, and good samples will command prices that many farmers will be loathe to pay. The United States Department of Agriculture, however, urges the seeding of as large an acreage as possible. The best information obtainable shows that the foreign market is quite as bare of clover seed as is our own. The French and Italian supplies are sold out, and there appears to be no surplus in Germany or in Russia. This means that clover seed will be high for at least two years to come if not more, and those farmers who seeded last spring or who seed in 1920 will have a chance to sell their clover seed crop at a good figure. This is a time to look ahead, and for American farmers to get the benefit of the high prices, before Europe has been able to get back to normal production and the prices fall.

Watch Quality of Seed

In view of the high price of clover seed, it is especially important that farmers pay careful attention to the quality of seed they buy. The relation between the purity and germination of a sample of clover seed and its value to the farmer has been so frequently discussed that it is not necessary to enter into details. A farmer, paying a low price for a poor lot of seed, may really be paying more for the good seed that will grow than he would have in a sample of higher price. The only way to decide this is to secure samples and quotations from reliable firms, and have the seed analyzed by the State seed laboratory or by the seed laboratory of the United States Department of Agriculture.

The attention of farmers is also called very especially to the fact that French and Italian seed has been and is being imported into this country and that the experiments so far conducted by the Department of Agriculture indicate that this seed will produce a plant more subject to disease and less hardy under our American conditions than plants from our own seed.

In sections where there is no disease and if the winter is moderate a successful stand of clover may be secured with imported seed but the chances against success are always greater than when using American seed. Farmers are urged, therefore, to insist upon a statement showing where the seed offered them was harvested.

It is also a time to consider with more than usual care the means necessary for getting the most out of the seed sown. It will not pay to throw expensive seed on poorly prepared ground as was so often done when clover seed was cheap. The seed bed should be well prepared. The best way is not to sow the seed in early spring on the wheat but to harrow it in on the wheat or to seed wih a spring grain in a well prepared seed bed. Seeding alone without a companion or nurse grain crop will often be better, but not always. If seeding must be done on rather worn soil, it is better to seed alone especially if the field is not very weedy. If a special seed bed is prepared it should be well compacted. A freshly plowed and harrowed field is too open for the best results. The soil must be compacted or the seed bed will dry out before the young plants get their roots down far enough.

Be Sure Whether Lime is Needed

Another matter of the utmost importance is to consider whether or not the field it is proposed to seed needs lime. Unless the farmer is sure, he should send a sample of the soil to his State station and inquire. Not far from 75 per cent of the arable land east of the Mississippi and north of the southern boundary of Tennessee needs lime to bring a good crop

(*Continued on page 5.*)

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BETTER CONDITIONS DEMANDED FOR PEOPLE LIVING IN COUNTRY

Secretary of Agriculture Points Out Most Urgent Needs

Personal Credit Unions and Better Marketing Facilities Important—Much Has Been Accomplished During Past Few Years

Calling attention to the things which have been done during the last few years the improvement of agriculture and the betterment of rural life, David F. Houston, Secretary of Agriculture, in his annual report for 1919, expresses the opinion that among the other steps which should be taken are the following:

(1) The building up, primarily under State law, of a system of personal credit unions, especially for the benefit of farmers whose financial status and scale of operations make it difficult for them to secure accommodations through the ordinary channels.

(2) Expansion of existing facilities and activities for aiding farmers in marketing, including especially the extension of the market news and food products inspection services, and the assignment of trained market specialists to each State, in cooperation with the State authorities, to stimulate cooperative enterprises and to make helpful suggestions as to plans and methods.

(3) Continuation of the present policy of Federal participation in road building, through the appropriation, if the financial condition of the Nation permits it, of $100,000,000 for at least each of the four years beginning with the fiscal year 1922, to be expended under the terms of existing legislation.

(4) The regulation and control of stockyards and packing houses.

(5) Federal legislation further to protect consumers against misbranded, adulterated, and worthless feeds entering into interstate commerce.

(6) Similar legislation dealing with fertilizers.

(7) Increased support by States for rural schools and more definite direction

of their instruction along lines related to rural problems and conditions.

(8) The requisite legislation for the improvement of the sanitary conditions in rural districts and for the building up of the needed hospital and medical facilities.

Need for Broad Rural Survey

"Present conditions, and particularly present states of mind," says the Secretary, "indicate the need of a fresh, broad survey of rural life, of its special problems, and of its relationships. It should be viewed as a whole. A comprehensive flexible program should be developed for the guidance of the different agencies, each of which has it peculiar functions and responsibilities. Furthermore, the principles and purposes governing agricultural life and agencies should be set forth for the education of the American public, particularly the urban part of it. The Nation as a whole needs a fuller appreciation of its basic industry and a more definite sense of direction of its efforts to foster it. Many agencies are now following more or less well-defined, helpful plans of their own devising, but these are at best piecemeal, and there is confusion of leadership and objectives. A program made by any one element would be partial and unsatisfactory. We should have a meeting of minds of all those directly concerned, of farmers, of agricultural leaders, and of business men.

"The President has already indicated his intention to call a conference at which there will be not only a generous representation of farmers but also of agricultural agencies and organizations and of business interests which have an intimate relation to farm problems. I believe that because of changed conditions here and elsewhere, of existing uncertainties, and of disturbed states of mind this conference should be called at the earliest possible date. It may be that as one outcome of it the creation of a rural life commission, with a temporary or a permanent status, will be determined to be in the public interest. Certainly, the best means of fostering our basic industry can not too frequently receive definite consideration by the best minds of the Nation."

Achievements in Agriculture

The past five or six years, Mr. Houston says, have been especially fruitful of legislation and administrative action in matters looking to the improvement of production and distribution. He cites definitely the following achievements:

(1) The Bureau of Markets, excelling in the character and extent of its activities any other similar existing organization.

(2) The cooperative agricultural extension act, the object of which is to disseminate information among the farmers, mainly through trained agents. As has been indicated, there is now expended annually from Federal, State, and local sources more than $14,000,000 for work contemplated by this act.

(3) The cotton-futures act, with amendments, under the provisions of which standards for cotton have been established, the operations of the futures exchanges supervised, and the sale of cotton put on a firmer basis.

(4) The grain-standards act, which aims to bring about uniformity in the grading of grain, enables the farmer to obtain a fairer price for his product and afford him a financial incentive to raise better grades of grain.

(5) The warehouse act, which authorizes the Department of Agriculture to license bonded warehouses and which makes possible the issuance of reliable and easily negotiable warehouse receipts, permits the better storing of farm products, increases the desirability of receipts as collateral for loans, and promotes the standardizing of storages and of marketing processes.

(6) The Federal aid road act, as amended, which made available $294,000,000 for cooperation between the Federal and State Governments in the construction of rural roads. It has conduced to the establishment of more effective highway machinery in each State and strongly influenced the development of good road building along right lines. It will stimulate larger production and better marketing, promote a fuller and more attractive rural life, add greatly to the convenience and economic welfare of all the people, and strengthen the national foundations.

(7) The Federal reserve act, which authorized national banks to lend money on farm mortgages and recognized the peculiar needs of the farmer by giving his paper a period of maturity of six months.

(8) The Federal farm loan act, which created a banking system reaching intimately into the rural districts and operating on terms suited to the farmer's needs. It is attracting more capital into agricultural operations, bringing about a reduction of interest to farmers, and placing upon the market mortgages which are safe investments for private funds.

(9) The vocational education act, which, among other things, provides for cooperation with the States in training teachers of agriculture and in giving agricultural instruction to pupils in secondary schools.

Government Takes Steps to Save Herd of Forty Thousand Elk From Starvation

The two principal herds of elk in the United States—one of which is under the protection of the Biological Survey of the United States Department of Agriculture—are in danger of such serious depletion, due to early severe weather and feed shortage, that special funds have been set aside for the purchase of hay for these animals whose home is in and near Yellowstone National Park. Department officials are making every possible effort to procure the needed feed despite the serious scarcity of hay and forage in the region. Approximately 40,000 elk roam this section of the country. They are divided into two groups, known as the northern and southern herd, respectively. The latter, which winters in the vicinity of Jackson Hole, to the south of Yellowstone Park, is the one for which the Department of Agriculture is seeking to make provision.

Ranchmen Reluctant to Part with Hay

Reports have recently been received from Government representatives in the region of Yellowstone National Park stating that many elk are destined to starve if the present severe weather continues and if no additional supplies of feed are provided. On the winter elk refuge in Jackson Hole the department has in store approximately 1,300 tons of hay which normally would be sufficient to carry the southern herd through the winter. But cold weather and heavy snows came so early that there is grave danger that the animals will be without feed before many weeks have passed. Ranchmen in the region are confronted with a serious condition and are reluctant to part with any of their hay.

The northern elk herd is under the supervision of the National Park Service of the Department of the Interior, which is also making every effort possible to prevent loss of these animals.

These two herds are the largest elk herds remaining in this country, though at one time elk were to be found in large numbers as far east as the Blue Ridge Mountains. These animals, like the buffalo and antelope, have now been reduced to a mere fraction of their former numbers. The few herds that remain besides those in the vicinity of the Yellowstone Park are relatively small. Loss of many of the animals in the larger herds might be irreparable, say Government officials.

MORE FAMILIES SHOULD HAVE HOME-GROWN FRUIT ON TABLE

Home Orchard Deserves More Attention from Farmers

Over Most of Country Enough Varieties Can Be Grown to Provide Fresh and Canned Fruit Year Round

In many sections of Florida and California the housewife needs only to step outside of her kitchen door to gather the grapefruit for breakfast or the oranges for dinner. This can not be done everywhere, but there is no reason why any rural or suburban housewife, even if she lives close to the Canadian border, should not have fruit of some kind growing in the back yard. This is the opinion of specialists in the United States Department of Agriculture, who treat in detail the subject of "Growing Fruit for Home Use" in a publication under that name. It is Farmers' Bulletin 1001 and may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

The ideal fruit garden or home orchard should contain several different kinds of fruits, represented in many cases by a considerable number of varieties ripening one after another over a long period. Large yields, good shipping quality, and attractiveness in appearance, which are aims of the commercial grower, may be made secondary to high dessert quality or special excellence for cooking purposes.

Plans for Home Orchard

The home fruit plat should be planned carefully and, in general, with a view to supplying fruit continuously throughout the year either in the fresh state or canned or otherwise conserved. Throughout a large part of the country one may grow in the same garden, if he so desires, the following fruits: Apples, pears, peaches, plums, cherries, quinces, strawberries, raspberries, blackberries, dewberries, currants, gooseberries, and grapes. In the colder sections the winters are too severe for peaches and also for some of the other fruits named unless they are proteteed; while in the warmer parts apples, currants, gooseberries, and certain varieties of several of the other fruits fail because they are not adapted to the long hot summers and mild winters. But in these warmer regions, Japanese persimmons succeed, and in some of them figs and certain other fruits can be planted successfully. Therefore, one of the most important features of the plan for the home-fruit plantation is the selection of kinds of fruits and varieties of those kinds which will do well in the given locality and which will serve best the purpose for which they are desired.

The location of the land on which the fruits are planted, other things being equal, should be convenient to the house. It should be well drained, since fruit trees can not thrive in poorly drained soil. The air drainage also must be good. Cold air settles to the lowest levels; and, if a site is so located that cold air settles over it from some surrounding higher elevation, the fruit blossoms are likely to be killed by untimely spring frosts; or the fruit may be injured by freezes in the autumn when sites located on the sides of slopes or at points which are higher than the surrounding area escape such injury.

Most fruits can be grown on a great variety of soils, but where possible it is better to avoid light sandy soils and heavy clays. A deep subsoil, which is friable and porous enough to permit a ready penetration of the roots and a free movement of soil moisture, is desirable.

Good nursery stock of suitable kinds and varieties is fundamental to success in fruit growing. While many of the long-established nurseries sell their stock largely through agents whose integrity is unquestioned, many other nurseries have no traveling agents, but sell direct to purchasers. It is better, as a rule, for a grower to deal directly with a nurseryman rather than through an agent.

When to Plant Fruit Trees

In the North, and wherever the winter conditions are severe on plant life, either from low temperatures, drying winds, or other causes, fruits are usually planted in the spring as early as the soil can be put in suitable condition. It is very important that they be set out while the plants are perfectly dormant and before the buds have started. Many failures result from delaying the planting until the buds have started into growth.

In middle latitudes, and in the South, where winter conditions are favorable, planting in the autumn after well-matured nursery stock can be obtained is widely practiced, and is usually preferable to spring planting. In some parts of the South planting may be done at almost any time during the winter.

If the prospective planter prepares the soil where his fruits are to stand as thoroughly as he should prepare his garden before planting vegetable seeds, the subsequent growth of his fruit trees will amply repay him. Where the site selected is in sod, it is advisable to cultivate it during one season at least after the sod is plowed under, in order that the grass roots may decay before the fruits are planted.

Where the fruit plantation occupies a garden site, usually it should receive about the same tillage that is given a vegetable plat. In the popular mind this represents a high standard of excellence. Frequent tillage to maintain the surface soil in the condition of a fine dust mulch is preferable in most cases to any other method of treatment. The tillage of fruit trees should be continued until midsummer in the North, but it may be kept up to good advantage somewhat later in the South. Strawberries, as a rule, should be cultivated until the approach of cold weather.

Under most conditions the same methods of maintaining the fertility of the soil which are followed in a vegetable garden are successful with fruits. Where stable manure is available, its liberal use generally gives excellent results.

The same kinds of insect pests and fungous diseases that are found in a commercial orchard in any region may be expected to occur in a fruit garden or home orchard located in the same region. Therefore, in planning a home-fruit plantation the grower should inform himself as completely as is possible in regard to the methods of controlling the common insects and diseases to which the fruits he is growing are subject in his locality. This information may be found in bulletins issued by State experiment stations, agricultural college extension divisions, the United States Department of Agriculture, and elsewhere.

The bulletin, which discusses these points at length, also gives attention to other problems that will confront the amateur fruit grower, such as seasons of planting, handling the stock from the nursery, planting, cultural methods, maintaining soil fertility, pruning and training, irrigation, varieties of fruit for different regions, fruit varieties, age of bearing, and varieties suitable for different districts.

MORE GRAZING IN NATIONAL FORESTS

The demand for range on the National Forests was greater the past year than ever before in the history of the Forest Service, which branch of the United States Department of Agriculture has control of these tracts. Especially in the drought-stricken regions, stockmen, using the unreserved public domain or private pastures, eagerly sought forest permits in order to save their stock. The value of the system of range regulation in use has been so thoroughly demonstrated that representative stockmen from all the western States have declared emphatically in favor of placing the remaining unreserved public lands under Federal control and having them managed under a plan similar to that in effect on the National Forests.

Weekly News Letter

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Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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FEDERAL INSPECTORS WATCH FOR "PLUGGED" GRAIN CARS

Heavy loading of grain, due to shortage of cars, offers a temptation to the unscrupulous shipper to "plug" his load by placing inferior grain on the bottom of the load to escape detection, according to reports received by the Bureau of Markets, United States Department of Agriculture. When the car is heavily loaded it is sometimes difficult for grain inspectors to reach the bottom of the car with the ordinary grain trier.

Federal grain supervision offices report a few recent discoveries of this practice. In one case a car of corn, which the inspector had graded No. 2 mixed, was found to have about 1½ feet of musty, heat-damaged corn on the bottom of the car. The supervision grade was No. 6 mixed on account of musty odor, 2.2 per cent heat-damaged, and 11 per cent total damaged.

In another instance about 1½ feet of very smutty wheat was found on the bottom of a car of which, which otherwise graded No. 1 free from smut.

While this practice is by no means common inspectors have been warned to be careful to get representative samples, and to be especially particular when sampling heavily loaded cars.

EARLY VARIETIES OF DWARF GRAIN SORGHUM ARE BEST

As the result of long-continued experiments in the production and improvement of grain sorghum varieties in the dry and elevated portions of the southern Great Plains, the United States Department of Agriculture announces the following conclusions:

Many varieties produce well in favorable seasons. Only well-adapted varieties produce well in the less favorable and in unfavorable seasons, which comprises about three-quarters of the total number.

Earliness is the most important single factor in the varietal adaptation of grain-sorghum crops to the conditions obtaining on the high plains of the Texas Panhandle.

Dwarfness is the next most important factor in the adaptation of these crops.

The combination of earliness and dwarfness is extremely efficient in insuring adaptation to environmental conditions which include frequent periods of drought.

Dwarf milo, Dawn (dwarf) kafir, and Sunrise (early) kafir are well adapted varieties.

Dwarf milo and Dawn kafir are meeting with wide approval on the farms of the high dry plains.

Germination and stand are governed largely by local conditions at sowing time.

Tillering, or the production of suckers, is a varietal or group character to some extent. In part, it is correlated with stand and seasonal conditions.

The production of erect heads is largely a group or varietal character, but is influenced by the same factors as tillering.

JAIL SENTENCE IMPOSED ON GAME-LAW VIOLATOR

For violating the provisions of the migratory bird treaty act in shipping grouse, quail, and woodcock from Blackstone, Mass., billed to New York City, a Connecticut offender has been sentenced to a term of three months in jail by the Federal court in Connecticut. This offender had been a source of trouble to both State and Federal game officials for a number of years and was finally arrested at New Haven, Conn., where the consignment was seized on November 24 by the State superintendent of the board of fisheries and game of Connecticut. The consignment was first discovered and reported to the Bureau of Biological Survey, Department of Agriculture, and to the game officials of Connecticut by the State commissioner of birds of Rhode Island. The shipment of birds in question was in violation of the laws of Connecticut, but inasmuch as it was also in violation of the migratory bird treaty act, the case was referred to Federal authorities for prosecution in the Federal court, with the result above stated. The vigorous measures thus taken in the enforcement of the laws protecting wild life will probably have a very wholesome effect in tending to prevent violations of the law in the future.

EUROPE TWICE SAVED BY AMERICA'S CROPS

America helped to save Europe and to preserve civilization, not only during the war but after the armistice, by making available, through increased production and conservation, large supplies of foodstuffs. This assertion is made by David F. Houston, Secretary of Agriculture, in a tribute to the farmers of the United States in his annual report.

"But for this contribution," says the Secretary, "it is difficult to see how the allies could have waged the war to a victorious conclusion. Lacking such support and with their own producing capacity seriously crippled, the German people experienced partial famine conditions; their health and vitality were greatly impaired; and the collapse of their military power was due in no small measure to the shortage of food.

"The cessation of hostilities brought no immediate improvement in Europe. On the contrary, in some respects more adverse conditions developed. Revolution became the order of the day; the directing hand of government was removed; discipline was relaxed; the morale, particularly of the people of the Central Powers, was broken; idleness and unemployment prevailed; and in some sections anarchy reigned. It was obvious that Europe could not produce sufficient foods for herself. Her crops had been short for several years, and it was scarcely probable that those for 1919 would be greater than the crops of the last year of the war. Quite as unsatisfactory was the live-stock situation. In nine of the western nations the number of cattle had declined more than 7,000,000; sheep, 7,500,000; swine, 24,500,000; and dairy cows several millions, with a greater proportionate reduction in the volume of products.

"Food relief after the armistice was imperative not only for the peoples of the new small friendly nations but also of the enemy countries. It became the key to the whole situation and to the establishment of a real peace. Europe had to be fed if order was to be restored and if European civilization, and, therefore, that of all the world, including our own, was to be preserved. America had again to assist in saving Europe and herself by supplying food, and that in great abundance. It was estimated that Europe would need to import at least 20,000,000 tons of bread grains alone, and that of this quantity 11,000,000 must come from the United States. It was obvious also that she would call for large imports of meats and fats, and that for months, until shipping expanded again, most of these must be obtained from the United States. This burden America was able to assume because of the achievements of her farmers."

Volunteer Forest Fire Reporters Needed To Assist in Combating Menace in South

A new call has been issued for volunteers—not for military duty, but for the important task of reporting forest fires in the Southern States. The Forest Service of the United States Department of Agriculture compiles reports regarding forest fires throughout the country which are invaluable to the conservation movement, and is in need of additional cooperators in the South, in order that it may have complete information regarding the frequency of fires in this region and the extent of their damage. In the North and West similar data are obtainable from State forestry officials, but in the South it is necessary to rely upon volunteeer reporters. Already several hundred persons are cooperating with the Forest Service in this, but it is desired so to enlarge the force that much more complete information may be secured. Consequently the service desires to get in touch with any person in the Southern States who will be willing to assist in supplying this information. The duties of a cooperator do not require much time, the work consisting in making out an annual report as to the number of fires, their causes, the extent of the damage, character of the damage, and so on.

The seriousness of the forest fires menace in the South is shown by the following figures: In each of the past three years nearly 12,000 forest fires destroyed property in North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi, valued at nearly $5,000,000; the total for the three years was 35,700 fires and a loss of more than $14,641,000. In the States of Missouri, Arkansas, Oklahoma, Louisiana, and Texas nearly 5,000 fires have annually destroyed $2,000,000 worth of property; the total for the three years is 13,983 fires, entailing a loss of $5,563,000. Thus in these two groups of Southern States, fires and fire losses for the past three years have reached the stupendous totals of 50,000 fires and $20,000,000 loss. With the exception of North Carolina, Louisiana, and Texas, no organized effort is made to control such fires, and even in these States the effort is far from adequate. The proposed enrollment of a large additional number of cooperators will, it is hoped, be a step in the direction of more widespread conservation.

SOW ALL RED CLOVER POSSIBLE, GOVERNMENT SPECIALISTS URGE

(*Continued from page 1.*)

of clover. This fact can not be too strongly emphasized. If the soil is "sour" do not waste expensive red clover seed on it—let some one else have it. But land need not remain sour. A ton or two of finely-ground limestone per acre will, in the average case, put the soil into condition to grow clover. It is not necessary to put on enough to completely satisfy the lime requirement. The Pennsylvania station has shown that a lime requirement of 500 pounds per acre or less did no great harm, but when more is needed it must be supplied if clover is to do well. Soil with a lime requirement of 1,000 pounds or more per acre will usually not make a paying crop of red clover. If the wheat ground needs lime the clover should be seeded with a spring grain with lime harrowed in on the plowed ground. If this can not be done the limestone may be put on the wheat and harrowed in with the seed, though it is not so effective when applied in this way as when spread on plowed ground and harrowed in. Farmers looking ahead for several years should consider liming the corn field next spring, especially if this is to be followed by wheat with clover on the wheat in 1921. Corn responds to liming more than small grains do and limestone put on in this way will prepare the ground well for a subsequent clover crop. Used in this way the full amount necessary to satisfy the lime requirement should be used, as some will be lost in the drainage water and some will be removed by the corn crop. A coating of manure will help clover, and on some soils phosphates are essential.

In some cases, too, potash gives good results, but potash is still scarce and its use will not be warranted unless the farmer knows that it is needed. A word of warning must, however, be added in the discussion of lime. Lime is not a fertilizer, and if used persistently without adding organic matter in the shape of manure or crop residues will eventually leave the soil the poorer. When clover is grown the nitrogen will largely take care of itself, but phosphorus and sometimes potash will have to be added as soils need them. And most of all will they need organic matter.

Good clover crops lie at the foundation of agriculture in the northeastern quarter of the United States. On many farms good clover crops can not be produced without lime, but lime alone will not permanently help the situation. A proper system of rotation with clover as a regular element in a three or four year rotation must be adopted for the permanent upbuilding of the land, and then whatever else the land needs in the way of lime or fertilizer must be added thereto.

WOOD CUTTING PROFITABLE IN FARMERS' OFF SEASON

Farmers, as a rule, have too much to do at certain times of the year and not enough at others. Many farms are unprofitable because their owners have little or nothing planned for winter. Wood cutting can be done at any time, but cool weather favors the rate of production, and in the winter the work does not conflict with that on regular field crops. If cut in winter logs are not subject to rapid drying, nor to deep checking at the ends of the logs, which often occurs in summer-cut logs and appreciably reduces their sale value.

Because of injury resulting from the southern pine bark beetle in the hot season, it is practically necessary to cut pine in the fall and winter months. Damage and loss in summer often come from wood-rotting fungi, including the "bluing" and other staining of wood. For these reasons a good many farmers turn profitably to logging and sawmilling for a few fall or winter months each year. Nearly every kind of wood product can be satisfactorily handled in winter, according to the Forest Service of the United States Department of Agriculture.

CONTROLLING TOBACCO INSECTS

Promising control of the tobacco flea-beetle has been obtained in Florida with certain insecticides, according to the annual report of the Chief of the Bureau of Entomology, United States Department of Agriculture. This is an important result, the report says, as in 1918 one grower claimed a loss from this insect of $650 an acre.

Dusting methods in the shade-grown tobacco region have been revolutionized by the introduction of power machines, which are capable of dusting from 10 to 20 acres a day more than can be treated with hand dusters. For tobacco thrips it has been found that nicotine sulphate, 14 ounces, and soap, 3 pounds, to 50 gallons of water, gives satisfactory control if applied properly once a week during the emergence period. An important point is the time of application.

Much valuable work has been done on other tobacco insects, the report adds.

Adequate Refrigeration for Meat Curing May Be Obtained with Very Simple Equipment

In the Southern States, unless some method of artificial cooling is used, meat while it is being cured is apt to become tainted, even in the winter. There are many meat refrigerators on the market, but one large enough to hold a sufficient amount of meat is usually more expensive than many farmers can afford. Another drawback to the large commercial type for this purpose is that its use is limited to a few weeks; for it is too large, and consumes too much ice to be used as a house refrigerator the rest of the year. The initial expense of an ice box for use during meat curing is high, and its life is comparatively short; for the salt atmosphere tends to rust the inside metal fittings, and these are difficult for an amateur to mend or replace.

Inexpensive Equipment

An inexpensive cold storage plan to use while curing meat is described by specialists of the United States Department of Agriculture.

The equipment needed consists of a good hardwood barrel with the head out, and a galvanized tub that is small enough to slip into the barrel and allow the rim to catch and hold on the upper edge of the barrel. This will suspend the tub in the upper part of the barrel.

When the meat is cooled, salted, and ready to cure fill the barrel about two-thirds full of the meat, or to within an inch or two of the bottom of the tub. Suspend the tub, which has been filled with ice, in the top of the barrel above the meat, or fill the tub after putting it in position. Wrap the top of the ice with cloth, and then cover the top of the barrel with cloth, old sacks, or paper. Replenish the ice as needed, and empty water from the tub when putting in more ice. If the entire barrel is wrapped with paper (old newspapers will do) the ice will last longer.

Meat, to keep well by this or any other cold storage method, must be properly handled from the killing to the salting.

CHANGES OBSERVED IN SOUTHERN HOG STYLES

South of the Mason and Dixon line, hog styles are changing, the underlying idea apparently being to eliminate extravagance, to effect intensive economy, to expedite growth in the most profitable types of porkers, to amalgamate, as soon as possible, the good points of the most profitable producers and to concentrate them in the majority of southern herds.

It is undeniable that some breeds of swine do better under certain conditions and with certain feeds and methods of feeding than do others, although there is no outstanding breed which excels, report specialists of the United States Department of Agriculture. No fads and fancies should influence the farmer in selecting or maintaining foundation breeding stock. Primarily, the farmer breeds hogs for profit and accordingly he should work only with utility animals of the most desirable type.

In every breed of hogs there are certain lines of breeding that are deservedly popular because they have been built through generations of careful selection by master breeders who have been successful in establishing the more fundamental qualities. The farmer should keep these facts in mind and should continue such improvement by close culling and proper feeding. The farmer's popular hog should be of a breed that is liked by both feeders and packers, animals that are adapted to all sections of the country and which will thrive and fatten on a large variety of feeds. It is essential that such porkers produce the maximum weight at the minimum cost; that they mature early to the greatest weight consistent with quality and that they inherit the ability to produce an abundance of frame and to make rapid growth.

Broad, high backs with good spring of ribs and full, deep hams denote carrying ability and high-priced cuts. Good strong feed and heavy bone are essential for the support and production of great weight. Long, deep, and roomy bodies denote prolific qualities and plenty of pork. Deep chests and bright, open eyes are signs of vigor and energy. Size spells more meat for the hungry world and more money for the southern hog producers who raise and market animals of the type described above.

OVERALLS AND WORK SHOES FOR GEORGIA SHORT COURSE

A "boll weevil school," a short course for farmers to be held at the Georgia State College of Agriculture January 20 to 30, will differ from all previous short courses, it is announced, in that the students themselves will take part in the practical demonstrations. Overalls and work shoes have been prescribed as essential parts of students' equipment.

Demonstrations are planned to show boll weevil poisoning by hand guns and by machinery dusters, inoculation of hogs, fence post treatment, terracing, tractor upkeep, plowing, treatment of diseased wheat and oats, marketing of hogs, and many other operations.

All the latest farm machinery will be there, not on exhibit, but at work in the fields. Special attention will be given to hand and power machinery, for dusting cotton with calcium arsenate, which gives the boll weevil his last drink.

SUPPLYING FARM'S TIMBER NEEDS

The foremost purpose of farm woodlands is to supply firewood, posts, rails, poles and rough building lumber for the maintenance and improvement of the farm. Often some timber is needed at once for building or repairs, and procuring it from town or near-by farms means delay and unnecessary expense. In such instances, forestry specialists of the United States Department of Agriculture point out, it is profitable to utilize the home resources, providing the farm woodland has been properly cared for and its wealth has not been wasted.

FIGHT GRAPE MEALYBUG IN JANUARY

January has been found to be the best month for attack against the grape mealybug, says the Bureau of Entomology, United States Department of Agriculture. Fumigation with cyanid of soda and with sulphur fumes has been satisfactory in the dormant season at night, but sulphur is considered the better. Spraying has proved less effective than fumigation. A campaign among grape growers has been begun to secure their cooperation in restricting the spread of the pest on picking boxes and in other ways.

SUBSTITUTE FOR PARIS GREEN

Additional experience confirms the conclusion, reported last year by the Bureau of Entomology of the United States Department of Agriculture, that arsenate of lime may be used in all situations as a substitute for Paris green, and that for pomaceous fruits—apples, pears, and quinces—it may prove a satisfactory substitute for arsenate of lead when used with lime or fungicides containing lime. A less expensive substitute for nicotine sulphate also is being sought.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Biggest Year in Meat Inspection.

The Federal system of meat inspection, which is conducted by the Bureau of Animal Industry of the United States Department of Agriculture, recorded its biggest 12 months in the last fiscal year. The number of animals slaughtered under Federal inspection was 20.6 per cent greater than in the preceding fiscal year and 21.6 per cent greater than the average for the last 12 years.

The total number of animals inspected was 70,708,637.

The ante-mortem inspection resulted in the condemnation of 2,588 live animals on account of 18 different diseases and conditions.

Post-mortem examination revealed 40 different diseases and conditions, resulting in the condemnation of 212,245 carcasses and 603,050 parts of carcasses.

The seven meat-inspection laboratories which are a part of the service made more than 60,000 analyses of products. Analyses revealed 306 violations of regulations.

Employees in the meat-inspection service number about 2,500, including veterinary inspectors, experts in sanitation, laboratory inspectors, lay inspectors, clerks, and others.

The number of establishments at which inspection was conducted last year was 895, located in 263 cities and towns.

There were certified for export 3,492,070,795 pounds of meat and meat products.

The total amount of meat offered for importation was 179,911,142 pounds, of which, upon inspection, 842,160 pounds were condemned or refused entry.

The inspection of meat for the military and other departments of the Government amounted to 288,248,536 pounds, of which nearly 10,000,000 pounds were rejected.

In connection with actual inspection of meats and products, numerous investigations were conducted to develop and improve tests of various kinds and to perfect the system generally.

An Entomological Wire Tapper.

When telephone girls in California find their wires are "shorted," a bug may be on or in the wire, for California has a wood-boring beetle that goes through wood and also through alloyed substances considerably harder than lead. The beetle has put hundreds of telephones out of commission by boring holes in the cables that carry the wires. Water enters the cables, making wire connections useless until the bored places are found and repaired. The problem of control of this metal-boring beetle is still unsolved, according to the Bureau of Entomology of the United States Department of Agriculture, and it will be difficult to find a practicable way.

Big-Game Herds Increase.

Big-game animals are increasing on the four big-game reservations under control of the United States Department of Agriculture. The report of the Chief of the Bureau of Biological Survey shows a total of 368 bison, 274 elk, 54 antelope, and 21 deer, an increase in each species over the number reported last year. The number of visitors to the big-game reservations is also growing, says the report.

Must Label Excessive Borax.

An order signed under the control act by the Secretary of Agriculture on December 6, 1919, and issued by the Bureau of Soils of the United States Department of Agriculture provides as follows:

"That hereafter no licensee handling or dealing in fertilizers or fertilizer ingredients shall sell for application to the soil any mixed fertilizer which contains more than one-tenth of 1 per cent of boron, expressed as anhydrous borax, unless the container thereof be marked, tagged, branded, or labeled so as to show plainly and conspicuously, as part of the analysis, the percentage of borax present."

Keep Strength in TB. Plan.

After two years of practical operation of the tuberculosis-free accredited herd plan, a joint committee representing the pure-bred cattle associations and the United States Live Stock Sanitary Association has unanimously decided that no steps should be taken to lower the high standard of the present plan.

It was decided that no herd should be accredited if it contains a tuberculous animal, male or female. It was agreed by the joint committee, to show that owners are exerting an effort to exterminate the disease, that a supplementary list be made to the accredited herd list to contain the names of the owners of pure-bred herds that are free from tuberculosis on two annual tests but in which the herd bull reacts. Such a herd will not receive an accredited herd certificate. The reacting bull may be used under certain conditions.

The accredited herd plan is administered by the Bureau of Animal Industry, United States Department of Agriculture, in cooperation with the States.

Seek Bug to Bite Moth Borer.

"The little bugs that eat our crops
Have other bugs to bite 'em.
The other bugs have lesser bugs,
And so, ad infinitum."

The old verse, somewhat paraphrased, is recalled by the statement of the Bureau of Entomology, United States Department of Agriculture, that the best hope for control of the moth borer of sugar cane now seems to be the importation and establishment in sugar-cane regions of parasites which exist in Cuba.

Bureau experts have been sent twice to Cuba for the collection of the parasites which reduce the effectiveness of the moth borers. The parasites have been imported and every effort is being made to propagate them in the Louisiana cane fields.

Pecan Area May Be Extended.

A study of pecan varieties is being made by the United States Department of Agriculture in the States bordering the area recognized as definitely within the pecan-growing territory. Planters in Oklahoma, Tennessee, Kentucky, Indiana, Ohio, Illinois, Missouri, and Kansas are becoming interested in the possibility of growing pecans, and are seeking information with regard to varieties possessing the necessary qualities when grown under their conditions. The work of the department during the past year has included an investigation of the range of the species, the adaptability of varieties to different regions, methods of propagation, soil improvement, orchard management, and methods of harvesting, curing, packing, and handling the product. It appears that a considerable proportion of the varieties now being planted are so far below the general average of the best sorts in production and other important characteristics as to justify their elimination. It is becoming more and more

evident, say the specialists of the department, that greater attention should be given to the matter of stocks for use in propagating pecans in the nursery.

Examine Samples for Road Builders.

A special laboratory devoted to the microscopic examination and classification of road-building rocks, maintained by the Bureau of Public Roads, United States Department of Agriculture, has examined 686 samples of material during the past year, according to the chief of the bureau. This represents a considerable increase over the preceding year and shows the pronounced interest in matters relating to highway construction. Of the samples examined, 249 were rock, 41 slag, 151 gravel, 189 sand, 45 clay, and 11 miscellaneous.

Millions Saved from Wild Beasts.

Taking the estimates of farmers and stockmen themselves, there has been saved to them during the past year not less than $5,000,000 from the hunting of predatory wild animals by the United States Department of Agriculture, in cooperation with the States. The work is done by the Bureau of Biological Survey and such agencies as are designated by the various States. During the past fiscal year about 32,000 wild animals were killed under the direction of the Biological Survey by a force of between 400 and 500 skilled hunters. Indications are that still greater numbers were killed by poisoning, though no actual count could be made of animals thus destroyed.

Extensive poisoning operations were conducted in the great sheep-growing sections of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. This was followed by a marked decrease in the number of coyotes, particularly with a corresponding decrease in the losses of sheep, cattle, pigs, colts, and poultry. Stockmen say that on many important ranges and lambing grounds the former heavy annual losses have become negligible or have been entirely eliminated. As an illustration, there is an area about 75 miles in diameter in western Colorado where sheep owners formerly reported an average loss of about 25 sheep a day throughout the season. Poisoning operations have been conducted through two successive seasons. Destruction of predatory animals has been so thorough that sheep now range freely, sometimes unattended for several days in succession, without loss. Losses throughout the area are nominal.

"Insect Patrol" Continued.

Arrangements made during the war with the Quartermaster Department of the Army at the port of New York, whereby the Bureau of Entomology of the United States Department of Agriculture undertook to make frequent inspections of food and clothing supplies, proved so satisfactory that they have remained in force and are being extended to other supply depots, not only of the Army but of the Navy. The purpose of this cooperation is to keep the Quartermaster Departments of the Army and Navy informed, through inspections made by bureau experts, not only of conditions of food supplies purchased and delivered at the warehouses, but also of their condition from time to time during the storage period. Such inspections detect and lead to the checking of insect ravages before the insects have had a chance to multiply and cause great loss.

Club Girl's Hens Profit Makers.

"I am a poultry-club member, and my records show that this year the net profits from my chickens were $525.35." This is the report of Valerie Henning, of Panola County, Miss., who at 16 holds the championship of her State in poultry-club work. She, with six other Mississippi girls and two chaperones, recently visited Washington. The five-day trip was a prize offered by Mississippi bankers and business men to the girl in each district of the State who made the largest profit in her club work.

Miss Henning has been a member for two years of one of the poultry clubs supervised by the United States Department of Agriculture and the State colleges.

To obtain her start in club work she borrowed $13.50 from a local bank. With this money a pen of Barred Plymouth Rocks, consisting of four hens and one cockerel, was bought. The profits from her chickens last year, her first in poultry work, were $374, and her flock for 1919 consisted of 2 cockerels and 19 hens. By the use of trap nests and leg bands, the record as a layer of each hen had been observed, and only the good egg producers were kept. From January 1 to October 16 the 19 biddies laid 2,840 eggs. Miss Henning sells nearly all of the eggs for hatching purposes; but the birds she raises, aside from the culls, bring from $15 to $20 a pen.

The money this club girl has made through her poultry work is being used to pay her way through an agricultural high school.

At the World's Crossroads.

Most of the peoples of the world meet at the Panama Canal, and so do many of its most destructive insects. That is one of the important reasons why the Bureau of Entomology of the United States Department of Agriculture has established at this "world's crossroads" a station for investigations of the native insects and of the insects brought to the district by ships passing through the canal. The work is in cooperation with the authorities of the Panama Canal Zone and the Federal Horticultural Board, which protects this country from foreign plant pests. Useful information already has been developed, according to the Bureau of Entomology.

Several important fruit flies and other tropical and subtropical insects, any of which might cause great damage if established in the United States, now exist in the Canal Zone. The bureau says there is need to keep constantly in touch with the plant cultures and insect enemies in this district as a means of benefiting local production, but particularly for the protection of the United States.

United States Date Culture Advanced.

American methods of date culture are probably more advanced than those of any other date-growing country in the world, in spite of the fact that experience in this country is limited practically to two decades. This statement is made by the Chief of the Bureau of Plant Industry, United States Department of Agriculture, in his annual report for 1919. Though still conducted on a small scale, date culture has become a recognized commercial fruit industry, and gives promise of steady growth. The culture of the Deglet Noor, the finest of the imported date varieties, has already become well established in California.

Make Tests of Concrete Pipe.

The need for standardizing the methods of manufacture and the development of standard tests and testing equipment to determine the strengths of concrete pipes has resulted in the establishment of a field laboratory by the Bureau of Public Roads, United States Department of Agriculture, where equipment is being experimented with and tests have been conducted. Field tests have also been made to determine the tensile strength, resistance to internal pressure, and the perviousness of 40 kinds of concrete pipe now used in irrigation. These investigations have been prompted in part by the high cost of iron and steel, which has greatly enlarged the demand for concrete pipe to meet rigid conditions in irrigation systems, notably where pressure pipe is needed to carry water under high heads. California alone now has more than 150 concrete pipe manufacturers, and concrete pipe is being laid at the rate of many hundred miles a year.

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LESS DANGER APPREHENDED FROM EUROPEAN CORN BORER

Experience During Last Season Reduces Early Alarm

Problem Now is to Determine Infested Areas and Damage, Possibilities of Control, and Measures to Limit Spread

The experience of the past season with the European corn borer leads the United States Department of Agriculture to make the statement that apparently there is little justification for undue alarm over the possibility of this insect becoming a menace to the corn crop throughout the entire country.

It was perfectly natural at the outset when it was discovered that this insect was working considerable harm to small patches of sweet corn and the dwarf flint corn grown about Boston that grave fears for the future of the corn crop of this country should be aroused. The facts as now known, however, give basis for a very material modification of the earlier judgments as to the possible future importance of this insect.

That the European corn borer is a pest to be reckoned with and may, wherever it has two or more generations annually, cause considerable injury to susceptible varieties of corn, has been demonstrated. However, the following reassuring facts have been discovered as the result of the department's work during the past season:

Serious Damage Only Near Boston

Up to the present time the corn borer has inflicted considerable damage to corn only in the Boston district, where the corn grown is of the sweet and dwarf varieties and where the corn borer, owing to the climatic influence of the Gulf Stream, is two-brooded. After 10 years of slow spread the insect has attacked occasional fields of sweet and flint corn, under conditions favoring multiplication of the borer, to the extent of nearly 100 per cent of the stalks and 20 to 50 per cent of the ears. However, in most of the fields in the area now invaded in coastal Massachusetts and New Hampshire, the injury has been negligible. When the corn-borer larvæ are limited to the stalks the ears, as a rule, are normal. Even when the larvæ enter the ears the injury is certainly not greater than that caused by the ordinary corn ear worm, which is reckoned at about 7 per cent by weight of the kernels of each ear attacked. The presence of corn-borer larvæ in ears of sweet corn has not prevented the sale of the corn and, in most instances, it has been sold at the ordinary market price.

Field Corn Not Damaged

The only kinds of corn that have been shown to be damaged to any appreciable extent by corn borer are sweet corn and the dwarf flint varieties. The few fields of common field corn (Dent) grown in the invaded area in Massachusetts, both by farmers and as a part of the department's experiments, were practically free from infestation. In the large area in western New York, determined this fall to be infested and where it is believed the infestation is of 10 years' standing, large-stalked corn is commonly grown. It was so scantily infested that discovery of the insect in most fields was possible only by the most intensive search.

Climatic Control Indicated

As a single-brooded insect the corn borer has been a negligible factor, even in the production of sweet corn and the dwarf varieties. It is a single-brooded insect in New York, and, by fair inference, will be single-brooded throughout the northern portions of the corn belt. In New York, where the insect has presumably been present for 9 or 10 years, a great deal both of sweet corn and flint corn are grown, and no appreciable injury was suffered.

Natural Control Developing

An important natural control has also developed in a little parasitic fly (*Trichogramma minutum*) which destroyed fully 43 per cent of the eggs of the second generation in the Massachusetts area of infestation. In places, however, this parasitism reached 75 per cent of the eggs. The activity of this parasite greatly restricted the damage which

(*Continued on page 6.*)

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MORE FARMERS SHOULD KNOW HOW TO JUDGE BEEF CATTLE

Important for Breeders as Well as for Exhibitors

Knowledge Serves as Basis for Seeking Improvement Along Well-Charted Lines—Art Explained in Bulletin, Free on Request

A real need in agricultural regions today is more widespread knowledge of how to judge live stock properly. While the judging of the finest animals is likely to remain an art in which relatively few persons can attain the highest standing, nevertheless farmers as a whole should be thoroughly familiar with the general principles of judging stock. Knowledge of this sort is a real asset.

The art of judging beef cattle is the foundation of all beef-cattle shows, and also is largely the means of determining the value of cattle offered in public sales. It serves as a basis for every man who buys and raises cattle to seek improvement along well-recognized lines.

If a breeder is not a good judge he can not mate individuals so as to get the best possible offspring. Knowledge may be obtained through long experience, but a systematic course in judging may accomplish the same end at a cost of fewer mistakes and a much shorter time. If a farmer is a competent judge of feeders, for example, he can go to the market and save the buying charges or commissions on a deal which otherwise would have to be handled through commission men.

Judging Feeders Less Difficult

For the man who feeds cattle for commercial purposes, it is more important to study how to judge feeders than fat cattle. Judging the former requires more skill than judging the latter.

Without standards, stock judging can not be made a success. The smallest cattle owner as well as the man who owns a large herd needs to be familiar with the ideal beef type. This animal, when fat, must have a low-set body which is broad, deep, and smooth, with level lines, having a thick, even covering of firm flesh. Hair, hide, and bone of good

quality, together with general character and style, also serve as an indication of the inner parts which can not be seen.

In learning to judge beef cattle it is necessary to become familiar with the location and names of the different parts of the animal. The names are similar in all classes of live stock, and can be learned easily by referring to annotated illustrations or diagrams. The names of wholesale cuts of the beef carcass correspond quite closely to those of the live animal, the only difference being that the wholesale carcass contains fewer parts.

Three Classes of Cattle

From the butcher's standpoint, cattle may be divided into three classes—fat cattle, feeders, and breeding cattle. The first comprises animals ready for the butcher's block; the second is the "unfinished product," and the third constitutes the class from which the others are produced. In fat cattle, one must judge according to what the cattle are at the time. In feeders, the animals which give promise of putting on the biggest and cheapest gains, and developing into the best beef form when fattened, are the ones desired. In breeding cattle, the true beef form is of prime importance, but there must also be assurance that the beef characteristics will be transmitted to the offspring.

Judging Fat Cattle and Feeders

Fat cattle, so called, include steers, heifers, calves, cows, and bulls. Fat steers and heifers constitute by far the largest percentage. Each must be considered from the butcher's standpoint, the finish and quality of flesh being of prime importance. Cattle bred especially for beef purposes have a tendency to produce marbled meat, or to deposit layers of fat throughout the lean meat, while in cattle bred exclusively for dairy purposes, the tendency is to deposit a surplus fat, principally around the internal organs, where it becomes a relatively cheap suet and does not tend to improve the quality of the lean meat. In judging feeders, it must be borne in mind that they are "unfinished" cattle, and therefore do not have the width and flesh covering of fat cattle. In general, the same qualifications apply to feeders as to fat cattle, except that certain points of the score card must be emphasized and others minimized. The desirable feeder is one that will dress out a high percentage of high-priced meats when finished and slaughtered.

Judging Breeding Cattle

Breeding cattle, first of all, must have the true beef form. In that respect they are intermediate between feeders and fat cattle so far as flesh is concerned. Early maturity and easy fattening qualities should be present to a marked degree. Good handling qualities are essential, as excessive fat, showing that the animal has been pampered, is undesirable. Heavy flesh is necessarily of importance, but breeding cattle should be judged more by their value as breeding stock than by the flesh they carry. Superabundance of flesh may hide defects. Too much emphasis can not be given to the fact that animals being judged should have ability to transmit their usefulness and desirable characteristics to their offspring. In fact, prepotency should be so strong and the line of breeding so well defined for the specific purpose, that the animal will have a tendency to produce better individuals than itself. Prepotency is obtained by consistent breeding toward a definite type and therefore is to be expected most frequently among animals true to their breed type.

Suggestions About Judging

In judging a class of cattle or inspecting a single individual, one should first make a general survey of the animals or animal, examining the general features from a distance and noting the general outline and typical beef form.

When first approaching an animal note the front view and the features of the head and the width and depth of the chest. On moving toward the side note the depth of the body and the lowness of the flank. The rear view will give the width of the back, spring of the ribs, and thickness and development of the hind quarters, particularly the thighs and twist. After a survey of the animal from a short distance a close inspection of the various parts of the body should be made, beginning at the head.

In the case of beginners, judging work usually should commence with the use of the score card, after the various parts of the animal have been identified and the use of the card has been explained. One should make a complete examination of the individual before the various cuts are noted on the card. The score card is intended primarily for beginners, and is to be used in learning the details of comparative judging. Comparative judging is employed exclusively in placing the awards at public beef-cattle shows. Practice tests may be confined to selecting the best individual in a class of cattle of the same age.

As one becomes more proficient, animals of different ages may be judged, but the sexes should be kept separate. In comparative judging one must examine the various parts and make direct comparison, keeping in mind the parts which are relatively the most important.

The judge-to-be should gradually acquire facility in summarizing the total of the qualifications of each animal. Use of the score card is a step toward efficiency in the difficult task of comparative judging. Only in close competition in comparative judging does the experienced judge need to place side by side the smallest details. However, in many judging contests, this becomes necessary and the judge may finally be required to make his decision upon relatively fine points.

Sample score cards for fat and feeder-beef cattle and for breeding beef cattle, together with a model card for comparative judging by class or team, constitute part of the material contained in a recent farmers' bulletin issued by the Department of Agriculture, entitled "Judging Beef Cattle." The 21 pages of text discuss in popular language the various features of judging beef cattle, and it contains suggestions regarding their scoring. The bulletin may be had free upon request.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces open competitive examinations for the following positions:

Clerk with knowledge of greenhouse practices, to fill vacancy in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C.. Salary $1,500 a year. Date of examination January 21, 1920. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Specialist in marketing cotton seed and its products. Vacancy in the Bureau of Markets, Department of Agriculture, Washington, D. C., at a salary ranging from $2,400 to $3,240 a year, will be filled from this examination. Date of examination January 27, 1920. Apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

DON'T PLANT INFERIOR SEED

With all kinds of seed as high as they are, the use of inferior seed is a most expensive form of carelessness. Careful testing of practically all kinds of seed has long been urged by the United States Department of Agriculture, and special stress is being placed on it, now that prices are so unusually high. In the matter of clover seed, for instance, attention is called to the fact that comparatively cheap seed may be actually higher than those that cost more money, because of low germination. The department, at various times, has issued advice in bulletins and other forms of the best methods of testing seeds. This information may be had free on application.

Farmers in European Countries Assisted by "Schools" Similar to Those in America

Reports from Europe relating to agriculture indicate that the rural populations in many countries of the Continent are receiving valuable assistance, which is somewhat similar to that provided by American farmers' institutes, and is playing a big part in reconstruction "over there."

That agricultural interests in this country may have a better knowledge of the systems of agricultural instruction for European farmers, whose products will come more or less in competition with those of America, the States Relations Service of the United States Department of Agriculture has made a careful study of reports from across the Atlantic. In view of what is being done in Europe it is interesting to note that there is now expended annually in this country from Federal, State, and local sources, more than $14,000,000 for work contemplated by the cooperative agricultural extension act, the object of which is to disseminate information among farmers mainly through trained agents.

The States Relations Service points out that the system of itinerant instruction in various European countries has been especially valuable to the small and middle-class farmers who are unable to attend permanent agricultural schools and can not afford to send their children to such institutions for long terms. Itinerant instruction is usually given at the request of a community or agricultural association, and the length of the session varies from four or five days to three or four months.

Previous to the war Belgium, Italy, Germany, and France took the lead in this phase of agricultural work. In Belgium the itinerant housekeeping schools have been of such a splendid character that many an American girl might envy the Belgium maidens' privileges. They have been able to receive free instruction in domestic economy, agriculture, dairying, kitchen gardening, care of the home, and many other branches. In recent years the four or five months' courses formerly given have been replaced by courses lasting seven or eight days. The Farm Women's League, a branch of the peasants' league or "Boerenbond Belge," which continued its activities during the war, is composed of circles of farm women. These circles promote lectures on "domestic economy," "education of children," "care of milk," "hygiene," "culinary art," "women on the farm," "family life," and similar subjects. At the request of the league several circles of farm women instituted itinerant housekeeping courses in their communities.

Italian System Described

According to the latest statistics, Italy has 278 chairs of agriculture that are occupied by men of professional training who are engaged in itinerant instruction. The cost of this work is more than $400,000 a year—an expense shared by the State, the Province, and the local organization. Since the close of the war many courses are being held in mechanical agriculture to instruct farm laborers in the use and repair of farm machines. Courses in farm bookkeeping for young men and young women are also contemplated. Thirty-eight of the itinerant instructors specialize in certain subjects, such as silkworm raising, mulberry culture, cheese making, viticulture, fruit growing, and plant diseases.

Itinerant agricultural instruction in France, which has been long established, was first given by departmental professors under the jurisdiction of the ministry of agriculture and commerce and the ministry of education and fine arts. This instruction reached adults only, but later traveling schools of agriculture during the winter months were established for young men. Similar housekeeping schools for girls have been in existence for years. In 1918 a law was passed providing professional instruction during the bad season of the year for farmers' sons unable to spend longer periods in the regular agricultural colleges. The law also provides for itinerant housekeeping schools for girls.

Practical Advice in Spain

In Spain little has been done in the way of itinerant instruction, but a few months ago a royal order was issued providing that practical advice should be given fortnightly to farmers by the technical personnel of the agricultural establishments and agronomic sections of all the provinces.

In South America there has been a limited amount of effort along this line. Brazil has maintained itinerant farm instruction for a few years. In 1913 the Argentine Central Railway fitted up two passenger coaches, one for lecture purposes and one as an exhibition car, and this was sent around the country, accompanied by an official agricultural expert. During the past year a somewhat similar undertaking has been followed by the Paulista Railway Company. In Colombia the question of creating a body of itinerant professors is being strongly agitated.

The idea of teaching the farmers better agriculture has extended even to portions of Africa and India, which are under control of the British, and small beginnings have been made. In the Central Provinces of India "Kamdars" are engaged in this work. Agricultural shows and conferences are also held and demonstration farms are maintained.

Giving Kiddies a Square Deal Sometimes Means "a Square Meal"

The child fed improperly is not getting a square deal in this world, however much else may be done for him by his parents. From start to finish he is under a handicap, mentally and physically, when in competition with those who have been given the right kind of food.

Surprising as it may seem, statistics show that the proportion of undernourished children in the better homes is large, just as it is in the homes of smaller incomes. The food served in the former may cost more and be in greater abundance, but it is quite as apt to be unsuitable for a growing child.

Wapella County, Iowa, is a prosperous community where comfortable homes are the rule and not the exception. Recently the county nurse and the home demonstration agent, with the aid of 10 volunteers, weighed and measured 2,189 children in the county. Of the children examined, 407 were below weight. Out of a group of 137 children in rural districts, who were weighed, measured, and inspected, only 5 were found to be normal.

To illustrate what proper diet will do for a child, two nutrition classes were started in Ottumwa schools. In one were eight children, each from 5 to 14 pounds under weight. They are being given one pint of milk daily for three months. One cup is given in the morning recess and one in the afternoon.

At the other school, a lunch is served at 10:15 each morning to the class selected. It consists of a large dish of well-cooked oatmeal, with sugar and whole milk, a glass of milk and graham crackers. The children are very eager for this plain wholesome food.

The records of gain are interesting. Every child has made at least a 2-pound gain. One 9-year old boy, 6 pounds underweight, has gained 8 pounds; and one 11-year old boy, 17 pounds under weight and in extremely poor physical condition, has gained 9 pounds, and his general health is much improved.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

ORGANIZATIONS PROMOTED AMONG RANGE STOCKMEN

Regulated management of the national forest ranges during the past 14 years has had a marked influence on development of live-stock associations. In 1917 there were 359 stock associations cooperating with the Forest Service of the United States Department of Agriculture. Last year there were 544, an increase of over 51 per cent. The old system, under which each holder of a permit gave individual attention to his stock while on the range, is being widely replaced by a pooling of interests along certain lines, accomplished by forming live-stock associations, with advisory boards to handle many of the details of stock management.

Many associations employ herders for the stock while on the range, buy and distribute salt, in some cases buy bulls, and take charge of other management and improvement matters which promote the best interests of those holding permits and the highest use of the range.

The method employed is the adoption of special rules, passed by an association and approved by the Forest Service. Compliance with these rules is then required of all users of the national forest range involved. Practically all of the more progressive associations have adopted such special rules as meet the needs of their localities. Membership in the association is open to all live-stock owners using the range in question, and a majority of all users must belong to the association in order to secure its recognition by the Forest Service.

In many cases advisory boards have recommended reductions in the number of stock upon a given range; they have also suggested changes in grazing seasons, with a view to securing the greatest benefits to the users and an improvement in the range. In practically all cases associations have interested themselves in constructing range improvements, such as drift fences; in water development, in the eradication of poisonous plants, and similar matters. Funds for improvements are obtained through assessments. Value of organized cooperation is most evident on range allotments, where conditions of use are very intensive, and the permitted stock belongs to a large number of small owners.

WHEN FRUIT TREES BEGIN TO COME INTO BEARING

Reckoning the age of a tree from the time when it is planted in its permanent place, apple trees should begin to bear, as a rule, when they have been planted six to eight years, according to the United States Department of Agriculture.

Certain varieties, as the Yellow Transparent and Wagener, may bear considerably younger, and others, such as the Northern Spy and Yellow Newtown, not until they are somewhat older. Individual trees of the same variety vary somewhat in this respect.

Pear trees bear, in general, at about the same age as apple trees, though perhaps a little younger.

Peach trees under favorable conditions often bear at three years of age, and in any event they should bear at four years unless injured by frost or otherwise.

Plums vary considerably according to the group to which they belong, but most sorts begin to bear in four or five years after planting.

Sour cherries ordinarily begin to bear in about four years and sweet cherries at six or seven years after planting.

Apricots come into bearing at about the same age as peaches, or sometimes a little later.

Quinces are usually five or six years old before they bear much fruit.

Raspberries, blackberries, and dewberries, if planted in the spring, should bear a light crop the next year. Strawberries planted in the spring or early enough in the autumn to make a good growth before the advent of cold weather, should produce a good crop the next season.

Currants and gooseberries commonly bear a few fruits the third season after planting.

Grapes may bear very lightly the third season where conditions are favorable, but not much fruit should be expected earlier than the fourth year.

Our Domestic Animals Have Acute Hearing

WHY YELL!

Show me a man who says "milking is a dirty job" and I will show you a man who will make a dirty job of milking.

DAIRYMEN!

SAFETY FIRST

Cleanliness Is Safety

Gentle treatment of our cows, horses, hogs, and sheep will put money in our pockets and peace in our hearts

The foregoing, printed on blotters, were distributed by Ben R. Eldredge, agent in dairying for the United States Department of Agriculture and the Utah Agricultural College.

TRADE TERMS APPROVED, NOT ADOPTED

Four large fruit and vegetable trade organizations have approved and recommended and one of them has adopted the recently issued "Standard Rules and Definitions of Trade Terms for the Fruit and Vegetable Industry," according to information reaching the Bureau of Markets, United States Department of Agriculture. In a recent statement indorsing these standard trade terms the bureau stated that they had been adopted by four large fruit and vegetable organizations. Only the American Fruit and Vegetable Shippers' Association has adopted these rules and definitions, although they have been approved and recommended by the National League of Commission Merchants of the United States, the International Apple Shippers' Association, the Western Fruit Jobbers' Association of America, as well as by the American Fruit and Vegetable Shippers' Association.

LESS WOOL USED IN NOVEMBER

Manufacturers used about 60,600,000 pounds of wool, grease equivalent, in November, 1919, or slightly more than 8,000,000 pounds less than the amount consumed in October. The November, 1919, total exceeded that for the same month in 1918 by approximately 13,400,000 pounds. Totals by condition, in pounds, for November, 1919, as given by the Bureau of Markets, United States Department of Agriculture, were: Grease, 43,147,921; scoured, 7,605,982; and pulled, 1,674,951.

"BETTER SIRES, BETTER STOCK" GOES AHEAD

W. A. McKerrow, of the Minnesota Agricultural College, will represent that State in cooperation with Federal officials in the nation-wide "Better Sires—Better Stock" campaign. The work will be conducted largely through county agents, many of whom already have been active in pointing out how the use of purebred sires of good quality rapidly increases the value and productivity of live stock.

PLANS LIVE-STOCK IMPROVEMENT

Lincoln County, Wyo., plans to improve the quality of live stock during the coming year and through its county agent, A. D. Egbert, has signified its active support of the Federal State "Better Sires—Better Stock" movement. Last spring, two bull associations were formed with four blocks in each. According to information received by the United States Department of Agriculture from County Agent Egbert, these were the first bull associations formed in Wyoming.

NEW HAMPSHIRE PLANS SURVEYS

Every county in New Hampshire is included in plans for live-stock improvement in that State. Following an annual conference recently held at which extension activities were planned, J. C. Kendall, director of extension of New Hampshire, notified the United States Department of Agriculture of active support given the "Better Sires—Better Stock" campaign. A systematic survey of the live stock in several counties is to be undertaken in connection with this movement.

BETTER SIRES ON UTAH RANGE

"A good bull is half the herd. Get a pure bred."

"Range a GOOD pure-bred bull with 25 cows."

These printed slogans, inclosed in outline sketches of bulls of approved type, are stamped on correspondence now being sent to live-stock owners of Summit County, Utah, by the county agent.

The Summit County Farm Bureau is cooperating with the Utah Agricultural College and the United States Department of Agriculture in the Nation-wide "Better Sires—Better Stock" campaign, and every live-stock owner in the county has been invited to enroll.

"Many farms in the county," the county agent says, "are wasting money and time on animals that give less return than would better stock for the same expenditure."

VOTE FOR BETTER SIRES

County agents of New Hampshire voted unanimously at a recent conference to recommend to their farm bureaus that they participate in the "Better Sires—Better Stock" campaign. The conference developed the fact that indiscriminate use of breeding stock was a drawback to the betterment of New Hampshire's live stock. County agents in that State will hasten the departure of scrub sires and likewise emphasize that sires used in the future should not only be pure bred but in addition should possess individual merit.

REPORTS MANY REGISTERED SIRES

Rock County, Minn., has 32 breeders of pure bred cattle and 63 breeders of hogs in the 12 townships of the county. The number of pure bred live-stock breeders and all those using pure bred sires has doubled within the last two years.

County Agent M. E. Teeter has notified the United States Department of Agriculture, in connection with the "Better Sires—Better Stock" campaign, that of the 1,500 farmers in the county more than 400 are now using registered sires.

"We have built," he adds, "a new $15,000 sales pavilion and have organized breed associations."

TEXAS WOULD OUTLAW SCRUB SIRES

The Pure Bred Live-Stock Association of Collins County, Tex., favors the enactment of a statute which virtually would retire from service every scrub and grade sire kept for public use. The resolution adopted by unanimous vote includes official registration of stallions, jacks, bulls, rams, and boars.

It provides that a copy of the pedigree of sires for public service shall be posted at the barn or pen. Copies of the resolutions have been furnished the senator and representative representing Collins County in the State legislature, together with a request for aid in procuring the enactment of the regulations presented.

County Agent G. D. Everett, of Collins County, has furnished the United States Department of Agriculture with a copy of the resolutions as evidence of interest in the "Better Sires—Better Stock" campaign, now being conducted as a nation-wide movement to improve the quality of American live stock.

BETTER-SIRES CONFERENCE IN OHIO

Charles S. Plumb has been designated to represent the Ohio Agricultural College in better-sires activities in the Buckeye State. Following a conference, at which officials of the college conferred with a representative of the Federal Bureau of Animal Industry, Ohio has outlined plans for hastening live-stock improvement.

The Federal-State "Better Sires—Better Stock" campaign has been adopted as one of the means for conducting the work. Under this plan farmers using only pure-bred sires of good quality at the head of their herds and flocks are given an emblem of official recognition. The Agricultural extension force and county agents of the State will give the movement their hearty support.

POINTS FOR EGG BREAKERS PICTURIZED IN BOOKLET

One bad egg in the waste can will do no harm, but one in a can of frozen eggs will do a lot. To keep the bad eggs out of the egg can, the Bureau of Chemistry of the United States Department of Agriculture has issued Department Circular 74, "How to Break Eggs for Freezing," which tells, largely through pictures, the "do's" and "dont's" of the business.

Here are the "dont's":

Don't break eggs unless they are well candled.

Don't use blood rings, stuck yolks, addled eggs, green whites, bloody eggs, moldy eggs, musty or sour eggs, or any egg with a bad odor.

Don't give the germs a chance to multiply. Remove the liquid product from the breaking tables at least once every half hour. Churn the yolks and whole egg. Take directly to freezer.

Don't attempt to freeze eggs unless the freezer is below 15° F.

Don't use utensils that have not been steamed for at least 20 minutes. Kill the germs that spoil the product.

Don't court trouble or give the business a black eye by trying to sell a doubtful product.

There is not much use in starting on the right road unless you keep on moving. Save regularly and get ahead with your War-Saving Stamp fund.

Federal Bureau of Entomology Points Out Opportunities in Commercial Beekeeping

If American beekeepers are able to meet increasing demand, the enlarged American consumption of honey will continue, says the annual report of the chief of the Bureau of Entomology, United States Department of Agriculture. During the war our exports of honey to the allied countries increased at least ten times, and the domestic use also went much higher. The increased export demand has continued since the end of hostilities, and the bureau sees reason to expect that this market will continue to be an important factor in American beekeeping.

Local sales of honey near the points of production have increased more rapidly than sales in the larger markets, but this can readily be remedied, according to the report, by the further development of the business of bottling honey.

Good Care Essential

The tendency to collect the bees of the country in the hands of commercial beekeepers is viewed as a wholesome sign for the development of the industry. Prevalence of two destructive brood diseases, and especially the necessity of careful study of beekeeping problems in order to obtain maximum crops, make it almost impossible for the person having only a few colonies to give the care essential for good beekeeping. Only the man who makes beekeeping his chief work may expect to get proper returns, says the bureau.

LESS DANGER APPREHENDED FROM EUROPEAN CORN BORER

(*Continued from page 1.*)

would otherwise have resulted to the late sweet-corn crop.

Possibility of Cultural Control

There is apparently a possibility of cultural control. The only place where appreciable injury has resulted from the corn borer is the trucking and small garden district immediately around Boston, where the truckers have universally complained of a shortage of labor. There has been very general neglect of weed growth along roadways, on waste land, and even in home and truck gardens. The insect—known to have more than 100 food plants—bred in such grass and weeds. The corn growth throughout this area is in patches of from a fraction of an acre to a few acres and evidently attracted and concentrated the insects from the surrounding weeds. The worst infested fields were usually either poorly tilled and weedy or surrounded by neglected, weedy areas. There were notable examples in the center of this district of well-tilled fields of sweet corn with clean surroundings in which injury was negligible.

The menace to the corn crop of the country, then, is minimized by the slight susceptibility of common corn to borer attack; by the practical certainty that the insect will be single-brooded over much of the northern corn-growing areas, and that where single-brooded it inflicts no injury, even on small types of corn; that good culture in clean surroundings appears to be a valuable control measure, and that notable control by an egg parasite already has developed.

Origin of Corn Bread

As a result of the past season's investigations, the department believes that the corn borer was brought to this country in 1909–10 with importations of about 10,000 tons of broom corn, chiefly from Hungary. Some of this broom corn was used near Boston and some in the region in New York, where the insect was first found in that State. But the bulk of the broom corn went to St. Louis, Chicago, New Orleans, and other western and southern cities and was widely distributed to broom factories. A wide dissemination of the corn borer throughout the Mississippi Valley, therefore, is entirely possible.

Where Borer is Known to Occur

The European corn borer is now known to occur over the entire coastal region of Massachusetts, including Cape Cod and adjacent islands, and over several towns in southern New Hampshire, approximately 1,800 square miles; in New York, in the Mohawk Valley, between Amsterdam and Albany, about 800 square miles; in western New York, over an area of at least 500 square miles, and the area of known infestation is constantly expanding as the survey proceeds; and over a limited area in Erie County, Pa.

In view of this known wide distribution and the possibility that it may exist in numerous other localities, and in view also of the large number of plants on which it feeds, the Department of Agriculture realizes that extermination of the corn borer is out of the question; that the problem now is to determine the areas infested, the economic importance of the insect in different regions, the possibilities of practical control, and to cooperate in quarantine and other measures to limit or prevent spread, including the cleaning up where possible of outlying areas. For these purposes, Congress has been asked to make an appropriation of $500,000.

How Tom Jenkins Lost His Cow And What His Club Fellows Did

Tom Jenkins—that isn't his real name, but it will do—was very proud of his cow. He used to go out to the barn and curry her, like a horse, and "doll her up," and tie a blue ribbon around her tail. He was figuring on her being the best cow owned by any of the boys' and girls' club members in Merrimack County, N. H. But once in a while Tom Jenkins would grow solemn.

"Crickets," Tom would say to himself, "suppose something happens to my cow."

Something did happen. The cow became sick and died, while she was still dry, and without returning a cent. That took all the joy out of life for Tom. He moped around, and once or twice he went out to the barn and looked at the place where she had stood.

"I'm in for it," he said. "My cow is gone, and I owe the bank every cent she cost. It'll take a million years to pay it back. Just my luck. I ought to have known better than to join that club."

Tom wasn't so far wrong at that. When a boy loses a cow these days it means something. Older people would feel just as bad, especially if, like Tom, they still had to pay for the cow, with no way of doing it.

But Tom's club leader heard about it. He knew that none of the club members was rich, but he told them about Tom's bad luck. And somehow, Tom's plight appealed to them, for many had borrowed money to start them in club work. They began to send in little contributions. A garden and canning club sold popcorn at the farm bureau field day and turned over $6.80 for Tom Jenkins's cow. In a month there was enough money to buy Tom a new cow—one that would return enough money to pay for the cow that had died. And she's doing it.

Make hay while the sun shines—and harvest ice while the freeze lasts. Another one may not come. Waiting for a more convenient season in ice harvesting, the United States Department of Agriculture points out, is likely to mean sour milk, lost money, inconvenience and discomfort all next summer.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Mapping Wheat Varieties.

For the first time in the history of wheat growing in America it will soon be possible to map the distribution of wheat varieties and to learn the large number of names under which the same varieties are known in different parts of the country. This result has been made possible by a comprehensive survey of varieties made by the United States Department of Agriculture, through the Bureau of Plant Industry and the Bureau of Crop Estimates working in cooperation. Schedules were sent to about 65,000 crop reporters to determine the distribution of wheat varieties, the source from which they came, the date of their introduction into the community, the percentage which each represents of the total wheat acreage in the community. The returned schedules have been studied, and about a thousand letters of inquiry have been sent asking for additional information and samples.

Electrocution for Insects.

Electrocution of insects infesting packaged cereals will result in great savings to producers and consumers if expectations are realized, says the Bureau of Entomology of the United States Department of Agriculture, which has been carrying on work of this nature. A commercial machine for sterilizing cartons of cereals after the latter have been sealed has been installed in a large cereal factory, with every promise of practical value.

Experimental work to determine the usefulness of fumigation in lessening or preventing the enormous waste taking place through insect attack to stored goods in warehouses, though as yet extending over only a short period, has yielded practical results of great value. The value of cold-storage temperatures in preventing insect damage has already been proved. Detailed data regarding the effect of low temperatures upon various insects attacking stored products are being secured.

Why Plant Corn Early?

Earlier planting of large, productive varieties of corn is frequently much more profitable than the normal planting of early maturing varieties. Proof of this has been obtained in many instances, announces the Chief of the Bureau of Plant Industry, United States Department of Agriculture, in reporting on the results of experiments conducted to demonstrate the practicability and value of the earlier planting of corn. By much earlier than normal planting it has been found that larger varieties can be profitably grown for ensilage in northern localities with much better yields than can be had from the smaller native varieties planted at the usual date.

In the South, by planting small short-season varieties earlier than normal, much earlier maturity can be secured, affording a supply of corn for very early feeding. Many rather soft varieties that rot badly when planted late produce sound corn when planted early in southern localities. The planting of short and long season varieties in alternate rows has increased yields where moisture is a limiting factor.

Varieties differ, it has been found, in their ability to adapt themselves and their grain production to varying stands. Prolific varieties, when given increased space, have shown ability to increase their grain production much more satisfactorily than have the single ear varieties, because of their ability to make up for deficiency in stand.

The studies made by the department specialists have resulted in isolating uniform types within a variety. It has been found that so-called varieties of corn are largely conglomerates of many distinct types, and to arrive at basic facts in breeding work it is necessary to segregate these uniform types.

May Grow All Our Figs.

It is not improbable that this country will soon produce all the figs it needs. This statement is made by the Chief of the Bureau of Plant Industry, United States Department of Agriculture, in his report on the progress of Smyrna fig culture in California. Much of the success of this enterprise has been due to the fact that the department has been able to maintain a caprifig orchard at Loomis, from which caprifigs have been distributed free to growers. Before this distribution was arranged for many small growers of Smyrna figs became discouraged and some even dug up their orchards. The relationship between these two varieties is that the Smyrna fig is fertilized by an insect which lives on the caprifig. When Smyrna figs and caprifigs are planted together the caprifigs do not bear enough fruits to caprify the crop properly until several years after the trees begin to bear. For this reason a young orchard is dependent on importing the needed caprifigs during the first few years. It was to supply this need that the fig orchard at Loomis was leased by the department. Many new varieties of caprifigs have been brought to light, some of them very important in commercial Smyrna fig culture. Many thousands of seedling figs have been distributed to cooperators in the fig-growing regions of California, Arizona, and Texas, and some promising new varieties have been originated by a proper selection of male pollen.

In the fall of 1917 the fig insect was established in some old seedling caprifig trees in Brunswick, Ga., and since then a number of caprifig trees have been similarly treated. The result is that it has been possible to caprify and bring into bearing many sterile Smyrna fig trees growing in the Southeastern States. Some of these trees bear a very high grade of fruit, promising for use as fresh fruit or for canning. It is still doubtful whether figs can be grown in the southeastern United States to advantage in a commercial way, but it is a matter of much interest and of some economic significance that many old sterile fig trees in this region are really Smyrna seedlings. Approximately half of the trees are Smyrna figs, and the others are caprifig varieties.

Banishing Animal Diseases.

Victory over most of the destructive diseases of animals is in sight, and in a number of cases eradication is nearly complete. This statement is made in the annual report of the Chief of the Bureau of Animal Industry, United States Department of Agriculture.

Cattle scabies, which in 1906 was prevalent in nearly one-half of the United States, now appears only as outbreaks in limited areas. These outbreaks are being suppressed.

Eradication of sheep scabies, which in 1906 existed in more than one-half of the

land area of this country, is now about nine-tenths complete.

The cattle tick, which causes splenetic fever among cattle, and which has been the greatest obstacle to the development of the live-stock industry in the South, has had its domain reduced from more than 700,000 square miles in 1906 to 219,581 square miles on December 1, 1919. Progress has been continuous year after year, and the tick should be extinct in this country in 1924.

Eradication of animal tuberculosis has progressed as fast as the work could be handled by the veterinarian force employed; in fact, there has been a waiting list of herds to be tested. Animal TB probably will not be banished from the United States in the life of this generation, but it has been proved that the disease can be eradicated from small areas, and there is little doubt that eventually it will disappear from this country.

Meanwhile the Bureau of Animal Industry continues its vigilance to prevent the introduction from foreign countries of such dangerous animal scourges as foot-and-mouth disease, surra, rinderpest, and other maladies slightly known or unknown to the farmers of the United States.

Use for Wasted Whey.

Development of a method of utilizing whey as a human food is the object of work now in progress in the Bureau of Animal Industry, United States Department of Agriculture. It is thought probable that whey represents a greater actual loss of food than skim milk—which now has become an important by-product in the dairy industry—because its feeding value is not generally recognized. Cheeses have been made from whey, but the demand for them has been limited. The use of these cheeses might be extended if their value for cooking could be brought to the attention of housekeepers. Investigations of the use of whey solids as poultry feed also have been begun.

Considerable work has been done on the development of casein for use in waterproof glue, and a casein of low ash and acid has already been produced.

A method of producing casein from buttermilk is also being worked out. By use of a solvent to extract the fat from the buttermilk, small lots of casein have been made, and this product was found to be of general good quality and low in fat and ash, but it had the objection of dissolving slowly.

Better Seed Potatoes Needed.

Seed stocks of Irish potatoes commonly available to growers contain many mixtures, not infrequently diseased and as a rule not as productive as they should be. The Chief of the Bureau of Plant Industry, United States Department of Agriculture, makes this statement in reporting on the progress of work in developing improved seed stocks. It is a recognized fact, he says, that the yield of potatoes in this country is far below that secured in some other countries, and the difference is commonly attributed to the use of relatively inferior seed stocks. Seed-improvement work is being carried on by the department in cooperation with agricultural experiment stations in practically all of the important potato-producing States. The best seed stock of the leading varieties in different regions is being grown in the various States. During the progress of the season the various plats are inspected several times for the purpose of eliminating diseased plants and those which are not true to name or to type. At harvest time carefully studied selections are made for the purpose of obtaining the best strains of the different varieties. These potatoes in turn will be used for seed purposes with a view to developing stocks that are true to name, true to type, free from disease communicable through the seed, and that possess high-yielding proclivities.

Better Ways of Canning "Sweets."

In the farm canning of fruits and vegetables for the purpose of conserving surplus crops or those which can not be economically marketed because of distance from market or of untoward weather conditions, the Bureau of Plant Industry, United States Department of Agriculture, has in its experiments worked out satisfactory methods of canning sweet potatoes. Those now commonly used both on the farm and by commercial canners result in a product which has a more or less burnt and otherwise unpleasant flavor. These investigations have revealed the cause, and the new method results in a product essentially like fresh sweet potatoes. Canning tests have been made of 24 varieties, showing a wide variation in the value of different varieties for canning purposes.

Meat Inspection Helps Producers.

"Contrary to the common belief that meat inspection is conducted principally for consumers, it has a side which is of direct help to live-stock producers," says the Chief of the Bureau of Animal Industry, United States Department of Agriculture. "In the first place, the bulk of our foreign trade in meats depends almost entirely on the Federal meat-inspection service. Most foreign governments will not accept meat that has not been federally inspected. Inspection of import meats, accompanied by rejection of meat products not entitled to entry, is of course a factor in our domestic market.

"Through the Federal meat-inspection service it has been possible to obtain very detailed records of conditions of animals at time of slaughter. These records show clearly whether certain animal diseases are on the increase or decrease, and, through a system known as field inspection, centers of infection have in numerous cases been found and wiped out.

"Of course, the main benefit of Federal meat inspection to producers is the confidence of the American public in inspected meats, and it is noteworthy that the average per capita consumption of meats has increased as the meat-inspection service has been extended."

As the Bud, So the Fruit.

In the propagation of citrus fruits, buds should be selected not only from trees of known bearing proclivities, but even from limbs whose bearing proclivities are known, announces the United States Department of Agriculture in connection with its bud-selection work in California. Trees are exceedingly common, say the specialists, which in the main bear fruit of desirable type but have some limbs on which fruit varying from the accepted standard is produced.

Individual tree-performance records of young trees which have been propagated from older trees confirm the previous conclusion that the characteristics of the parent tree are propagated in the progeny with no important exception or variation. The progenies in experimental plantings are producing fruit comparable in every particular to that borne by the parent trees. If the parents were large yielders or had other desirable characteristics, so have the progeny. If the parent trees were barren or relatively so, the progeny is found to be unprofitable.

The performance records of individual trees on which departmental specialists have been working for some years, as well as cooperative records secured by the growers themselves, are serving an exceedingly important purpose, in that they are used as a basis for choosing the trees used as a source of bud-wood by the bud supply department of the California Fruit Growers' Exchange. This department furnishes buds practically at cost from record trees to all growers and nurserymen who are desirous of securing them.

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GARDENS ARE IMPORTANT IN FOOD PLANS FOR 1920

Will Help to Relieve Family Budget Strained by High Costs

Planting Already Going Forward in Southern Regions—Time to Be Thinking About it Farther North

Gardens are going to be just as important the coming year as during the war period, United States Department of Agriculture specialists declare. High food costs, they say, are likely to remain until more to eat is grown and distributed. Farm gardens, village gardens, and city backyard gardens all will help. Food produced in the garden not only helps balance the family budget but releases that grown on farms for the use of people who are entirely dependent upon others.

With the lengthening of the days it will not be long until land can be worked, and such hardy crops as peas, onions, lettuce, radishes and beets planted, especially throughout the lower Gulf Coast region. The average date of the last killing frost of the winter in this section is not later than March 15. This zone includes the southern portion of South Carolina, the southern half of Georgia, Alabama and Mississippi, almost the whole of Louisiana and all southeastern Texas. Several of the more hardy garden crops, including those mentioned above, will withstand considerable frost and may be planted at least a month before the average date for the last frost.

Take a Chance on Early Planting

Irish potatoes are easily injured by freezing, but they require about a month to come up and may be planted at about the same time as lettuce and radishes. It pays to take a chance on the early planting of certain of the more hardy garden vegetables. If they are killed or severely injured they may be replanted. A good method is to make about three plantings at intervals of two weeks, and if the first planting is killed the later ones take its place; if not killed, early vegetables will be produced and the second and third plantings provide a continuous supply.

WORK THROUGH SEASON

Keeping up the gardening interest throughout the season is just as important as making an early start. About the time the more hardy vegetables are planted in the garden the seeds of tomato, eggplant, and peppers should be started in a window box indoors. By the time the ground and the air are warm these plants will be of good size and ready to set in the garden. In the meantime a few "frostproof" or hardy cabbage plants may be set out. Next will come the planting of snap or string beans. Then follows the planting of Lima beans, summer squashes, melons of all kinds, and other of the more tender vegetables.

Remember the Greens, Too

And don't forget the greens. We all need more greens in our diet. Spinach, kale, and turnips will keep you supplied with greens during the late fall and early winter, but you should have a bed of spinach planted now, in the Gulf Coast region, for early spring greens. Early turnips and beets are excellent for use as greens and later you can have delicious Swiss Chard. Bassella withstands heat and makes satisfactory summer greens. The main point in getting the most out of your garden is to begin early and keep going throughout the entire season, making every foot of land produce to the limit.

SOLVING THE PAPER PROBLEM.

Greater importations of paper and pulpwood from Canada and increased production in the West, where there are still extensive stands of suitable forests, would prove to be but temporary solutions of the paper problem, according to the Forest Service of the United States Department of Agriculture.

In the long run the country must solve the problem on the basis of a permanent wood supply. There are two ways, requiring a constructive national policy, of permanently solving the question. They are, first, regeneration of our forests on a more productive basis, and, second, the greater utilization of mill waste for paper making.

WHAT HELPS FARMER MOST? COUNTY AGENT LEADS IN VOTE

Agricultural Press is Next in Line Among Agencies Favored

Thirty-Eight Per Cent of 2,300 Farmers in Northern States Place Extension System First—Some Problems Also Discussed

What extension agency is most helpful to the farmer?

Among 2,300 farmers of whom that question was asked, 38 per cent said that they received most help from the county agent and the farm bureau. The agricultural press was given first place by 31 per cent. Three per cent of the farmers interviewed said they received most help from farmers' organizations other than the farm bureau and 3 per cent said they received most help from bulletins and agricultural reports. Twenty-two per cent had no definite opinion as to which agency was mot helpful to them.

Sought Views of Farmers

These opinions were gathered in a survey made by officials of the States Relations Service, United States Department of Agriculture, in a number of Northern and Western States. The purpose of the survey was to get the viewpoint of the farmers themselves as to the relative efficiency of various phases of agricultural extension work and to learn the outstanding problems of rural districts as viewed by the farmers of those districts.

FARM BUREAU EFFICIENCY INDICATED

An indication of the efficiency of farm bureau work is found by contrasting the replies in States where the farm bureau is organized and in those where it is not. In the former, 66 per cent of the farmers interviewed placed the county agent and farm bureau first among the agencies that are of service to them, and only 13 per cent placed the agricultural press first. In States that have no farm bureaus, 26 per cent placed the county agent

first and 39 per cent placed the agricultural press first.

Labor the Biggest Problem

One of the questions asked was, "What is the biggest problem of farmers in your community to-day?" The farmers who answered this question were divided as follows: Labor, 682; improved farm practices, 637; marketing, 309; better organization of farmers, 55; financial assistance, 21; roads, 14; repeal of the daylight saving law, 9; schools, 1.

Of the farmers visited, two out of every three were acquainted with the county agent and his work, and 90 per cent of them were favorable to it. One farmer out of every three was receiving the bulletins of the United States Department of Agriculture, and two out of every five the bulletins of the State college of agriculture. Four farm families out of every five were taking both a daily and an agricultural paper, and one out of every two a magazine, usually a woman's magazine. One farmer in every three visited was a member of the farm bureau and one of every four was a member of some other organization.

A KEY TO SWEET POTATO VARIETIES.

The United States Department of Agriculture is working out a key by means of which varieties of sweet potatoes can be identified. There has always been a great deal of confusion regarding sweet potato varieties, and this key will make it possible to positively identify all true varieties. It is based on the color, size and shape of the stems and leaves, and in the color, size, and quality of the potatoes themselves. That the key works is attested by the fact that by its use varieties described at the time Columbus discovered America have been identified.

The development of varieties of sweet potatoes for stock feed, sirup, starch and sugar making is under way, and the preliminary results secured indicate that the possibilities of the sweet potato have hardly been touched upon. It is yet too soon to say just what may be expected from this work, but the results thus far secured are very promising. This work is being done at Arlington Farm, Va., and at the Pee Dee Experiment Station, Florence, S. C.

Investigational work in curing sweet potatoes has also brought out important results. It was shown that with proper handling in storage conditions, sweet potatoes can be carried through the winter and as late as April 1 with not more than 1 per cent of loss from decay.

CURRANTS AND GOOSEBERRIES SPREAD WHITE-PINE DISEASE

Their Destruction Urged to Stop Progress of Blister Rust

Safety Zones Around Trees Recommended at International Conference—Disease Established in Wide Area

Destruction of all currant and gooseberry bushes within 900 feet of valuable native and planted white-pine trees is the urgent recommendation of Federal and State authorities to pine owners in regions where the destructive white-pine blister rust has appeared or is likely to appear.

This action is urged as a result of reports made when representatives of the northeastern and middle western white-pine States, the Canadian Government, and the United States Department of Agriculture met recently in the Fifth International White Pine Blister Rust Conference. It has been proved that blister rust spores may spread for many miles from white pines to currant and gooseberry bushes, and over relatively short distances from the currants and gooseberries to other white pines. Under most conditions, it is believed, a safety zone 600 to 900 feet wide around the white pines to be protected will interrupt the "vicious circle" of the disease and will allow the commercial growth of white pine. Other conditions, however, may require wider safety zones, and pine owners in the various regions are advised to ask their State forester or the United States Department of Agriculture for expert advice upon this point.

Discourage Planting of Bushes

The conference also declared the cultivated black currant a nuisance in pine regions, and urged that the planting of currants and gooseberries be discouraged in pine-growing districts. It recommended a survey to determine the location and quantity of white pine in this country as a basis for applying practical control measures in cooperation with private owners. Continued scouting in the Western States and Canadian Provinces was urged to prevent the entrance of the disease into the sugar-pine and western white-pine forests. The conference also favored extensive planting of white pine on nonagricultural lands, provided currants and gooseberries are previously eradicated.

The recommendations for the destruction of gooseberry and currant bushes follow effective results from work of this kind in valuable white pine areas of the Northeastern States. It was shown that 95 per cent of the wild gooseberries and currants are removed from forest areas the first time a crew of trained men goes over the ground. In areas where currants and gooseberries were destroyed in 1916 and 1917 no new pine infections have been found.

Systematic eradication of wild and cultivated currants and gooseberries has been carried on by the Bureau of Plant Industry, of the Federal Department of Agriculture, in cooperation with States, towns, and private citizens. During the 1919 season 248,000 acres of white pine forest land in New England and New York were cleared of the alternate hosts of the disease at an average cost of 54 cents an acre.

Disease Has Firm Hold

The disease, which came into the United States on white pine nursery stock from Europe, principally in 1908 and 1909, is now widespread and well established in the New England States, eastern New York, western Wisconsin, and eastern Minnesota. Scattering infections have been found in western New York, with single infections in New Jersey and Michigan. Scouting by the Federal Department of Agriculture has failed to disclose the disease in the Rocky Mountain and Pacific Coast States, although the pinon blister rust, which bears a striking resemblance to the white pine blister rust, but is harmless to white pines, has been found from Colorado to California.

An example of the spread of the disease was reported to the conference from the town of Littleton, N. H., where every tree in a strip 5 miles long and a rod wide had been inspected. Of 1,071 trees examined, 316 were found diseased. The trees ranged from 3 to 10 inches in diameter. Inspection of 2,457 trees in a 25-acre pine lot in this locality disclosed that two-thirds were diseased. Wild gooseberries growing among the pines were given the entire blame for this loss.

USED PUREBRED SIRES 39 YEARS.

"I have kept registered sires for 39 years," writes Lloyd P. Ayer, of New London County, Conn., in applying to the United States Department of Agriculture for enrollment in the "Better Sires—Better Stock" campaign. Mr. Ayer is a breeder of Holstein cattle, Percheron horses, Berkshire swine, and poultry.

This record of using purebred sires since 1880—more than one-third of a century—was especially noteworthy since the emblem of official recognition granted him was the first to be issued in the new year.

Cuban Sugar Crop Not to be Purchased by U. S. Government; Situation Discussed

On the basis of the facts presented and the conclusions reached by the Sugar Equalization Board, the President has decided that the authority conferred by the McNary sugar act, passed December 20, so far as it involves the purchase and distribution of the Cuban crop by the Government, should not be exercised.

The matter of repeating the operation of the Government's purchasing and controlling the Cuban sugar crop for another year under war powers came up for active consideration in August, 1919. At that time there was an expectation that the treaty of peace with Germany would be ratified within a reasonable time and that peace conditions would reappear. There appeared to be a very definite view on the part of Congressional leaders that the exercise of war power should not be extended another year. There was dissent by one member of the Board of Equalization from the conclusion reached at that time by the majority of the board that the control should be further exercised. His view was that it was desirable to return to normal conditions and that a beginning in respect to sugar should be made. The majority of the board was definitely of the opinion that the Cuban crop should not be bought unless it was clear that its powers of control over sugar would be effective, and this could not be made certain without action by Congress. The President had not reached a conclusion in the matter when he started on his western trip and was taken ill. On October 3 the Equalization Board, through its president, expressed to the Senate committee its view that the Cuban crop for 1920 should and could be purchased provided the powers of control heretofore exercised by the board were continued in full until December 31, 1920, thus enabling the board to see that the consumers should secure a fine sugar at a reasonable price. The board at that time felt that it could renew its contract with the Cuban and American producers as well as with the refiners. No action was taken by the Congress until December 20.

Reasons Against Action

Conditions have now so changed that the members of the board do not believe that action by it under the provisions of the act of Congress referred to offers a solution of the problem of securing a regular supply of sugar for the people for the year 1920 at a reasonable price. The board has had no contract with the western beet or the Louisiana sugar-cane producers for the new 1919-20 crop, which began to come into the market in the fall, and therefore from about October 15 the control which the board could exercise applied only to the remainder of the 1919 Cuban sugar crop, which it had purchased and which was deliverable on or before November 30, 1919. A considerable quantity of the Cuban crop of 1920 has already been sold overseas and to American refiners. One of the elements which helped materially to make the board's action for the 1919 crop effective no longer exists. The board was able to deal with the unified Cuban selling agency for the 1919 crop and to secure and control the entire crop. Now there is no person or committee authorized to sell the balance of the 1920 Cuban crop. Therefore, if the Government of the United States, through the board, should appear in the Cuban market as a purchaser of the sugar, it would have to buy in individual lots, to compete with private buyers, and the tendency would be to strengthen the market and further increase the price. Furthermore, it would be compelled to buy sugar at the time of the most adverse market conditions and maximum prices and to seek to stabilize the price on the basis of this maximum or risk a very considerable financial loss.

Furthermore, the act of Congress limits the control of the Board over domestic sugars to June 30, 1920, and should the Board succeed in purchasing a large quantity of Cuban sugar for delivery throughout the year 1920 the Board would find itself in the position of trying to maintain a uniform, reasonable price over the whole country with no control whatsoever over the large quantities of sugar from Hawaii and Porto Rico, which come in mainly after June 30, and over the new Louisiana cane and western beet sugars, and this, too, at the time of the year when, if at all, absolute control of all sugars by the Board would be essential. In addition the act forbids the Board from putting into effect its present system of zone distribution under which consumers get their supply from the nearest and most convenient points of production. This system was most useful during the year 1919 in effecting a fair distribution of the available sugar. The conditions in the United States in respect to sugar are such for January, February, and March that there would be little hope of the Board's being able to reduce the price of sugar by purchasing the Cuban crop and attempting to reestablish control of the industry. It is possible that when the flow of raw sugars from the large crops of Cuba and Porto Rico reaches its peak in March and April prices may be somewhat reduced. The refiners' price is now 15.20 cents per pound wholesale, which is a considerable reduction from the first offerings of sugar refined from new cane sugars. The offerings of refined sugars for February deliveries are at 13.50 cents per pound wholesale, with still further reductions for March, which indicate a tendency in the industry toward settling down to normal conditions.

The recent act keeps alive the licensing power of the Board providing that whenever the President shall find that any storage charge, commission, profit, or practice of any licensee is unjust or unreasonable or discriminatory or unfair he may order the discontinuance of the same and, if necessary, find what is a just and fair charge, profit, or practice. This power will be invoked if necessary and, exercised in cooperation with the Department of Justice, will be of assistance in preventing profiteering.

Supply Seems Sufficient

Apparently the supply of sugar available for consumption in the United States will be sufficient to meet the demands. The United States, it is estimated, consumed in 1919 about 92 pounds for each person as against a normal consumption of 85 pounds. It consumed 600,000 tons of sugar more than in 1918 and 300,000 tons more than were ever used in the history of the country. It consumed, therefore, over 9,000,000,000 pounds of sugar, or slightly more than 4,500,000 tons. Of this, it normally produces 1,000,000 tons. The Cuban crop is unusually large—about 4,800,000 tons. The crops for Louisiana, the West, Porto Rico, and Hawaii will aggregate approximately 2,000,000 tons. Of the Cuban crop, it is estimated that the Allies will take approximately 1,250,000 tons. They might take more but for the fact that their aggregate purchasing power is limited and they must use it not only for sugar but for many other foodstuffs and many raw materials and manufactured commodities. It is apparent, therefore, that the amount of sugar from which America draws her supplies will be large.

The year after the Civil War the people consumed 18 pounds per capita. Their consumption down to 1890 ranged from 24 to 50 pounds. By decades it was as follows:

	Pounds.		Pounds.
1866–1875	35	1896–1905	67
1876–1885	42	1906–1914	81
1886–1895	57		

For the years since, it has averaged, it is estimated, 85 pounds, running up in 1919 to more than 90 pounds.

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FORESTER LEADS EFFORT TO SAVE DAIRY CATTLE

How drought threatened incalculable damage to the dairy interests of the Star Valley, located along the Idaho-Wyoming State line to the west of the Wyoming national forest, and how a local supervisor representing the Forest Service took the initiative in finding a practical remedy, is the story that has just come through from the West to the Forest Service, United States Department of Agriculture. It is a narrative typical of the newer sections of the country where mutual helpfulness and neighborliness abound. It illustrates also the varied conditions that come to the attention of Forest Service representatives, giving them opportunities to aid communities near their tracts in many ways not directly in their line of duty.

Fine Animals Threatened

For the past 35 years, dwellers in the Star Valley, which is part of the Upper Green Valley, have been breeding up their cattle until they have developed some fine dairy herds. But the history of the past summer is one of drought and discouragement. Save for a few local showers, no rain fell from May 1 until September 1. In consequence the hay crop was one-third normal. This meant that the cattle of the region, 90 per cent of which were dairy animals, would have to be sold at a great sacrifice, since they would bring little as beef animals, or else they would have to be shipped to a region where feed was available.

When the condition became acute this fall, the local supervisor, realizing that leadership was necessary, took upon himself to call a meeting of the stockmen of the valley to discuss the advisability of sending representatives to Nebraska for the purchase of hay, and to secure pasture for the surplus dairy stock which could not be cared for at home. This proposal was eagerly received. A second meeting early in August formed an association known as the Star Valley Feeders' Association, which empowered a committee to make arrangements for feeding the stock in that district through the winter.

Get Sustenance for Cattle

With as little delay as possible, two representative stockmen were sent to Nabraska, where they secured adequate hay supplies and pasture at a nominal price. The first shipment of approximately 800 head of cattle was started for Nebraska November 3. In all, about 3,000 head of the Star Valley herds have been removed to that State, a distance of several hundred miles. There they will remain until spring, when they will be brought back. The action of the association has so relieved the situation that the hay on hand is sufficient to carry the cattle left at home through the winter without loss.

The young stock and the dry cows were the ones taken away for winter feeding, thus allowing the dairymen to keep their milk-giving cows. As a result the milk production of the Star Valley is almost normal. It is expected that it will remain so during the winter.

DAIRYMEN ARE ORGANIZED FOR IMPROVED INDUSTRY

Nearly 100 farmers in the vicinity of Grove City, Pa., are organized into an association to promote the development of healthy herds. Eradication of tuberculosis is one of the activities stressed.

The constitution of the association specifies that the membership shall consist of such persons as have their herds under the supervision of the Pennsylvania State Livestock Sanitary Board and the Bureau of Animal Industry, United States Department of Agriculture.

The high standards set by the organization are indicated by an article in the constitution specifying that it shall be the duty of each member to deal honestly and squarely, and never to misrepresent an animal that he offers for sale or exchange. Each member is required to furnish the secretary-treasurer with a complete list of dairy cattle in his herd, the grade animals to be designated by name and number. The data supplied also include information regarding the dairy worth of each animal, as far as possible, and an extended pedigree of all animals, registered and eligible to registration, that are to be used for breeding. This service must be obtained through the association, and the charge for it is 50 cents for each animal registered.

The secretary-treasurer is required to keep a complete card index of all the dairy animals in the association, to prepare a monthly sales list, to receive prospective purchasers of dairy cattle and give them such information as will aid them in locating suitable animals owned by the members.

ONLY SIX PEANUT VARIETIES

Most of the so-called varieties of peanuts now to be found in the trade in the United States are merely low-standard varieties with new or local names, and there are only about six distinct varieties grown in this country. This statement is made by the Chief of the Bureau of Plant Industry, United States Department of Agriculture, in reporting on experimental work with peanuts. This work has included methods of planting, selection of seed, improvement of yield, and cultivation and handling of the crop. Selected strains of some of the varieties are being made with a view to producing those more particularly adaptable for definite purposes, such as the making of high-grade table and cooking oil or an oil that may be used in the manufacture of oleomargarine, and to some extent in making soap. Other purposes for which selections are being made are those adapted for human food in the form of peanut meal, peanut butter, and other products, and high-yielding strains for stock and dairy feeds.

ROSIN TYPES PREPARED

A set of the standard glass rosin types was recently deposited by the Bureau of Chemistry, United States Department of Agriculture, with the secretary of the Philadelphia Chamber of Commerce and another set will be deposited with the secretary of the Detroit Paint, Oil, and Varnish Club. With each set of types is a sampling adz, a grading box, and a copy of instructions for their use, all for the convenience of dealers in and users of rosin in the respective localities. The Bureau of Chemistry is prepared to send a representative to these and other places where sets of types have been deposited to explain to interested persons the cutting of samples and the use of the types and equipment in the accurate grading of rosin.

Forest Service Opposes "Light Burning" in California Forests; Danger to Timber

That the Forest Service is unalterably opposed to the practice of "Piute forestry," or the so-called light burning of timberlands at frequent intervals, is stated emphatically by Col. Henry S. Graves, Chief Forester of the United States Department of Agriculture. California, according to the Chief Forester, appears to be experiencing a wave of propaganda for "Piute forestry," a term given to the frequent burning over of timberland because this practice was followed by the Indians many years before the advent of the white man. A pamphlet advocating this practice has been issued recently by the land department of the Southern Pacific Railroad, and its general use has been advocated, it is said, by many of the large lumber companies.

"The advocates of light burning," said Col. Graves, "claim that by burning the woods every few years the forest will be kept clean of inflammable débris without injuring the merchantable timber. Hence serious conflagrations which, fed by small growth, underbrush, and litter, run up into the tree tops and kill the large timber supposedly would be rendered impossible. As a matter of fact this process of repeated burning, beginning back in the Indian days, has steadily depleted the forests.

Work of Repeated Burnings

"There are to-day nearly 2,000,000 acres of land in the national forests of California which were once heavily timbered but now have been reduced to barren brush fields by fire. This is not the work of one fire or a few fires, but of repeated burnings, extending over fifty or one hundred years.

"It is impossible to fire the pine woods of California on any extended scale without destroying with every burning at least a considerable portion of the small growth and at the same time eating out, little by little, the butts of the old trees. The next fire, whether following in one year or several years, extends this destruction. Every traveler through the Sierras is struck by the openness of many of their pine forests, by the patches of brush encountered everywhere from which trees have disappeared. Many a fine sugar or yellow pine has been burned out at the base until the wind toppled it over. 'Piute forestry' was steadily wiping out these forests until they were placed under Federal protection."

Col. Graves asserts that the light burning advocated by the Southern Pacific Railroad and other timber-owning interests in California would simply continue this slow but irresistible destruction. Forest Service men, he declares, have studied all of the areas deliberately fired by advocates of the light-burning theory, and there is no real difference between the effects of such burning and of the fires which the care-free Indian or settler started promiscuously in earlier days. They mean simply the end of the forests in time.

Enemy of Young Growth

The best argument that can be made for light burning, according to the Forest Service, is that the immediate loss of merchantable timber is comparatively small and that the destruction of the young growth may afford a degree of protection against crown fires. In other words, at its best, this practice is simply part of the process of timber mining which values nothing but the old growth, guts a forest of its merchantable timber, and turns the land into an unproductive waste. "Piute forestry" is held responsible by the Forest Service for wiping out from the California pine forests, in the national forests alone, at least 37,000,000,000 board feet of timber and reducing their value to the State and Nation to-day by at least $74,000,000. With continued light burning, it holds, no young growth can take the place of the virgin timber, and the pine forests of California in private ownership will be at an end when their present mature stumpage is cut.

Col. Graves recognizes the difficulty in protecting the forests of California efficiently from fire. He asserts, however, that the solution does not lie in the steady destruction of forest growth by light burning but rather in a much more effective and united effort by all agencies, public and private, to prevent and suppress forest fires. As the first step he advocates State legislation which will require the disposal of slashings on cut-over lands, enlist all timberland owners in organized fire prevention, and afford a basis for a much larger degree of cooperation between the Federal Government, the State, and the private owners of forest land in controlling the fire menace.

"The practical results of protection may be seen," he concludes, "on hundreds of thousands of acres of pine forests in the Federal holdings, where fires have been kept out successfully for 12 or 15 years. These areas afford a striking contrast to the 'clean' land where light burning has been practiced. Instead of there being no vestige of young growth the open spaces have been filled with thickets of pine saplings. In these forests future timber crops are assured. This is the kind of forest which the State of California needs for the protection of its irrigation and water power sources for insuring a perpetual supply of lumber for its intensive agriculture, and for safeguarding its whole economic and industrial future. California can have such forests if no quarter is given to the light-burning idea and all interests get behind a real program of fire protection."

State Promotes Sheep Raising—Helps Farmers Buy Western Ewes

Connecticut, trying to expand its sheep industry, is bringing in grade Merino ewes for crossing with rams of the mutton breeds that have long been popular in that State. These ewes have been selling for about $13 a head, thus affording the opportunity to farmers to make a beginning in sheep breeding with no great outlay of money. By a top cross of Shropshire or Southdown of pure breeding, lambs can be produced that will shear, on the average, considerably more wool of better quality than Shropshires or Southdowns. When sold to the butcher, these lambs may be expected to weigh and dress better than the scrub stuff still found on a good many general farms.

The purchases of Merino ewes are made out of a special fund of $10,000 annually, appropriated under an act passed by the Connecticut legislature last March, for the promotion of the sheep industry. The money comes out of funds derived from the sale of dog licenses and is expended by the trustees of the State agricultural college.

The first Merino ewes, a car load, brought into the State were exhibited at the Eastern States Exposition at Storrs and were afterwards purchased by Prof. H. L. Garrigus, of the Connecticut Agricultural College, under the act before referred to, for resale to farmers at cost. Other shipments have since been received.

It is not meant that the grade Merino ewes should supplant any ewes of the mutton breeds. The farmer who has a flock of purebred or high grade sheep of the mutton breeds is told by the sheep specialists that he can not afford to discount these animals. But there is room for a great many small flocks of sheep on general farms where a start has not been made with sheep. Such farmers

are urged by the sheep specialists, both of the Connecticut Agricultural College and of the United States Department of Agriculture, to invest in a few of the cheap western ewes. These ewes are good mothers and will produce healthy, hardy lambs. If a pure bred mutton ram is used, the lambs will attain a larger size than their mothers and will have better fattening qualities, though most of them will be slightly smaller than Shropshire or Southdown lambs. The ewes carry improved blood that will insure wool-producing character in the progeny. By culling the poorer ewe lambs each year and continuing to use purebred mutton rams, a good utility flock can be built up in a few years.

Dr. Bradford Knapp Resigns—Praised for Department Work

Dr. Bradford Knapp, chief of the Office of Extension Work in the South, has resigned to accept the position of dean of the College of Agriculture and Director of the Experiment Station, University of Arkansas. His resignation became effective January 15.

Dr. Knapp has been with the United States Department of Agriculture for a little over 10 years—since November, 1909. He was, at first, assistant to his father, Dr. Seaman A. Knapp, the originator of demonstration work directly with farmers. When the elder Knapp died about two years later, his son succeeded him as director of cooperative demonstration work, then a part of the Bureau of Plant Industry. When it was transferred to the States Relations Service in 1914, Dr. Bradford Knapp was made chief of the Office of Extension Work in the South. The manner in which he has discharged his duties is indicated by a letter written to him by Secretary Houston.

Difficult Task Accomplished

"You assumed," wrote the Secretary, "a very difficult task. You had to live up to an especially high standard set by your father. You have discharged your duties with great satisfaction to me and to other officials of the department and to the people of the South, and you have fully lived up to the high standard set by your distinguished predecessor. You have made a name for yourself, throughout the South particularly, and have established yourself in the confidence of the people of that great section of the country as a safe and efficient leader in agriculture."

When Dr. Knapp began his career in the department, there was no cooperation with agricultural colleges in extension work, except in a few cases of boys' club work. He drew the first contract covering all extension work between the United States Department of Agriculture and a State agricultural college—that of South Carolina. Similar arrangements have since been made with all the State colleges.

When Dr. Knapp began his work, the funds available totaled $448,000 from all sources. The total of funds from all sources this year is $5,352,339. There were employed in the field at that time 578 people. There are now approximately 2,300 persons employed in the field in the 15 Southern States alone. There were but three women employed in the field when Dr. Knapp took charge. The entire scheme of home demonstration work has been developed during his encumbency. Seventy-five per cent of the women now employed in home demonstration work are in his territory.

Originator of "Safe Farming" Term

Bradford Knapp originated the term "safe farming," and he has advocated it for farmers of the South, day and night, at seedtime and at harvest, through the years. It means making the farm sufficient to its own needs first, and attention to a special money crop second. The doctrine was incorporated in a series of letters to the farmers, bankers, and business men of the South, issued at intervals for a number of years. Since 1916, there has been an annual bulletin on "Safe Farming," and Dr. Knapp is leaving with the department the manuscript for the 1920 edition.

The first agreement for cooperation and freedom of work among the field forces of the various bureaus in the Department of Agriculture was brought about as the result of a conference between Dr. Knapp, then in the Bureau of Plant Industry, with representatives of the Dairy and Animal Husbandry Divisions of the Bureau of Animal Industry. This form of cooperation has since become general.

AID FOR HAWAIIAN POTATO GROWERS

An industry of considerable importance in Hawaii, the growing of Irish potatoes, has been largely discouraged in recent years by repeated crop failures and unfavorable marketing conditions. In consequence the United States Department of Agriculture, through the Hawaiian Experiment Station, has conducted an investigation of potato diseases in Hawaii to find a means of solving the local growers' problems.

It was found that crop failures were due to the use of poor seed, continuous cropping with no systematic rotation, diseases and insect pests, and unsatisfactory soil conditions.

The department believes that the potato industry of the islands can be put upon a far more profitable basis if there will be universal adoption of seed selection and disinfection, cropping rotation, and spraying with Bordeaux mixture. Already some of the growers have taken up spraying and other crop improvement measures. Sprayed plats show increases of from 50 to 200 per cent over unsprayed areas. In controlling the late blight, one of the most destructive diseases, a locally developed variety of potatoes offers considerable promise in resisting foliage injury.

Boys and Girls Grow Purebreds—Get Emblems in Sires Campaign

Fifteen boys and girls who are members of the purebred Shorthorn heifer club at Manhattan, Kans., enrolled simultaneously in the "Better Sires-Better Stock" campaign. These youngsters each own one purebred heifer, and some of them also have swine and poultry. The United States Department of Agriculture recently granted each of these youthful live-stock owners the emblem of official recognition awarded to persons agreeing to use only purebred sires at the head of their herds and flocks.

The enrollment blanks of the heifer-club members show that, in addition to the 15 heifers, they owned 2 purebred swine, 60 chickens, 8 turkeys, and other fowls, all of pure breeding, and also 25 grade fowls. The "Better Sires-Better Stock" movement encourages the general principle of using purebred sires regardless of breed or variety of stock kept or the extent of breeding operations.

The official records of the campaign show the greatest number of breeding animals enrolled by one person to be 602, and five other breeders each enrolled more than 300 animals. But those figures are exceptional, and the Department of Agriculture points out that a person having only one animal or fowl is eligible to receive the official recognition as a constructive live-stock breeder providing a pure-bred sire is used.

This fact enables members of calf, pig, and poultry clubs to enroll as participants in the campaign to improve the quality of live stock in the United States.

Don't wait to get that large sum for investment. Put all the little bits in Thrift Stamps and War Savings Stamps and you will soon have a large sum invested.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Speeds Nature; Beats Flax Shortage.

When an improved variety of seed is very badly needed to make up a national shortage of a commodity, the natural increase is not always rapid enough. One way in which an unnatural speeding up may be secured is shown by the work of the United States Department of Agriculture with flaxseed. Foreign supplies of flax coming into the United States were severely reduced during the war and an increase of flax acreage became imperative. A large number of pedigree selections and increase plats of the best varieties were grown during the summer of 1918 at the experiment station at East Lansing, Mich. In the fall of that year selections of seed of the various strains were taken to Porto Rico, and an increase crop was grown during the winter. The increased supply of seed thus produced was brought back to the United States in time for planting in the spring of 1919 in the fiber flax regions of Michigan and Oregon. These strains, developed by several generations of selection, produce flax, reports the chief of the Bureau of Plant Industry, that is decidedly superior to fiber flax grown from commercial seed of either recent or remote importation. The cultivation of fiber flax has become an established industry in eastern Michigan and the Willamette Valley in Oregon. In addition, the crop was cultivated during the past season in western Washington, southeastern Minnesota, southern Wisconsin, and western New York.

Chaperoning Wheat on High Sea.

Uncle Sam is not hesitating to follow up the products of his farms even when they go down to the sea in ships. A recent report of the Bureau of Markets, United States Department of Agriculture, says:

"A cargo of wheat was accompanied from Philadelphia to Genoa, Italy, to determine the effect of grade factors on the keeping qualities of different lots of wheat during ocean transportation. In this connection two other cargoes of wheat shipped from the United States were sampled at the Italian port of arrival and information was obtained on their condition at the time of discharge. The data on this work are being assembled for study in connection with efforts to assure the arrival of American grain in good condition in foreign ports and to perfect the grain standards to meet the requirements of ocean transportation. Samples have been collected from a boat loading at Astoria, Oreg., to determine the carrying qualities of the western-grown wheats which will pass through the Panama Canal to Europe.

Making Sure of Binder Twine.

The United States has long depended for much of its supply of binder twine on henequen from Yucatan. The uncertainty of the supply during the past several years has caused serious anxiety lest there should not be enough binder twine to harvest the increasing crops of grain in this country, and the United States Department of Agriculture has been making diligent efforts to find new sources of supply or new regions where binder-twine fibers may be produced. The chief of the Bureau of Plant Industry reports encouraging results. The conditions in limited areas, extreme southern Florida and on the larger keys, are regarded as suitable for the production of sisal and henequen fibers, provided the cost of land and of labor is not too high to permit successful competition. Henequen has been cultivated successfully for several years in Cuba and the plantations are being increased, but thus far they produce scarcely enough fiber to supply the cordage mills on the island. Conditions are regarded as favorable for the production of binder twine fibers in limited areas in Haiti and over a much larger area in southern Santo Domingo. Experimental plantings in Porto Rico have resulted in the establishment of a commercial plantation near Yauco and trial plantings near Quebradallas and on Mona Island have given promising growth. In the Virgin Islands excellent conditions for the cultivation of sisal have been found on St. Croix. In the Philippines the introduction of modern fiber-cleaning machines has resulted in increased plantings of sisal and private capital has bought and installed machines to develop the industry in a larger scale.

More Demand for Food Grading.

Increasing interest in uniform grades for fruit and vegetables is noted throughout the country by the Bureau of Markets, United States Department of Agriculture, as a result of the work of the food products inspection service and the experience of the past two seasons, which demonstrated the necessity of establishing definite standards.

The need for national standard grades and their value is shown by the fact that the grades for potatoes, made compulsory during the war, are still in wide use, although the regulations making them compulsory were canceled after the armistice.

Investigations of the grading of tomatoes, cabbage, and some other vegetable crops are now under way and the Bureau of Markets states that recommendations for grade specifications may be made in time for use next season.

Demonstration in Swine Breeding.

With the aid of the extension loan fund which has been created by public spirited citizens of North Carolina for financing worthy boys and girls in raising pure-bred live stock, various county agents in that State are starting demonstrations in swine breeding which promise to be particularly convincing to farmers in the localities concerned because the demonstrations are to be carried on largely by residents of the neighborhoods.

The method being followed is for the county agent to select a promising boy or girl in each of several districts who will agree to raise a sow for a given period. After a 4-acre plot suitable for the demonstration has been decided on and plans have been completed for improving it, an approved note is given by the youthful stock raiser to cover the purchase price of a sow, the cost of fencing, seeding and erecting one or two colony houses. The pig and the improvements are then purchased with money advanced from the extension loan fund.

The plan contemplates raising pigs to the age of 8 months. All animals used in the demonstrations are to be purebreds. The first North Carolina farmer to whom this proposal was presented instantly agreed to cooperate and set aside for his child four acres near the highway along which many people pass. The tract is to be fenced this winter according to the most approved methods and provided with a model self-feeder and an automatic waterer. A registered Poland China sow will take possession early in the spring and will farrow a March litter

in her new quarters. It is confidently expected that in this demonstration, as in the others being arranged in various parts of the State, the selected animals will pay all the expenses, including fencing and seeding, the first year.

American Diet Changing.

Whether it is because of the increased cost of meat or because people's tastes have changed, the fact remains that Americans are eating 8 per cent less meat than they were 20 years ago. This is disclosed in a recent dietary survey made by the United States Department of Agriculture.

In this survey 2,000 dietary records, each covering a period of 7 days, were collected from 1,425 families and 575 institutions in 46 States. Sixteen nationalities and many occupations and incomes were represented, as were also both urban and rural localities.

From a summary of 500 of these family records it appears that last year the average cost of food per man per day was 46 cents, with an average return in food value of 3,225 calories, 96 grams protein, 118 grams fat, and 405 grams carbohydrate. These figures are in fairly close accord with the dietary standards ordinarily used in discussing such problems of general nutrition.

A comparison of the foodstuffs purchased by the 500 families with the amounts of the same food purchased by 400 families about 20 years ago shows that the amount of meat in the American diet has decreased about 8 per cent, and the amount of grain products about 11 per cent. People are eating more milk, butter, and cheese than they were two decades ago, for the amount of dairy products consumed has increased about 6 per cent. Four per cent more vegetables and 8 per cent more fruit is being eaten now.

Some individual food habits undoubtedly need to be corrected, but, judging by these studies, it seems fair to conclude that the average diet seems to be adequate.

Farm Boys Plan for College.

Of 430 Mississippi club boys who attended a junior farm mechanics short course last summer at the Mississippi Agricultural and Mechanical College, 402 of the number expect to go to college when they have finished high school.

Boys who are in the agricultural clubs organized by the State agricultural colleges and the United States Department of Agriculture do not belong to the class whose scheme in life is to "wait for something to turn up." They believe in getting the best training possible for their life work and then going "hotfoot" after success.

The average age of the club members who attended this short course was 15.4 years. Of the number 362 lived on a farm, 182 belonged to a corn club, 226 to a pig club, and 6 to a potato club. The average grade of the boys in their school work was the eighth.

Their interest in school and their ambition is indicated by the fact that 329 expect to attend agricultural high schools and that 402 expect to go to college. The State agricultural college is the goal of 354. The big fact is, however, that 239 of the boys expect to have to pay their own way through college and are now making plans to that end. Club work has provided the funds for many a boy and girl in the past and doubtless will do so for these boys.

The great majority of these club members came from homes that possess many conveniences. Eighty-one of their homes had water systems, 46 had electric-light plants, 38 gaslight plants, 275 had telephones, and 159 had automobiles.

Forty States in "Better Sires" Drive.

In 40 States the Better Sires—Better Stock campaign of Federal and State agricultural forces is now fully organized and in many of them it is in full swing. Of the few not yet enrolled several have made plans for joining the movement which promises numerous benefits to the live-stock interests of the country. Each of the enrolled States has filed with the Bureau of Animal Industry, United States Department of Agriculture, the name and address of an official directly in charge of the work. This list will be furnished any inquirer on application. The States enrolled in the crusade on January 1, were as follows: Alabama, Arkansas, Arizona, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Kansas, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming.

Order Lime in Advance.

Farmers probably will not be able to secure lime to meet their agricultural needs if they wait about ordering it until they are ready to apply it. Under old conditions, companies supplying agricultural lime recognized spring and late summer as the two periods of demand, and farmers have ordinarily ordered their lime at the time they wished to apply it, in order to save time and work by including hauling from the railroad station and applying to the land in one operation. Under present conditions, says the United States Department of Agriculture, lime manufacturers are no longer able to adjust their business to this practice. Owing to shortage of labor in their own plants and transportation difficulties, last-minute deliveries can no longer be made with certainty.

For these reasons the Department of Agriculture urges that spring needs be anticipated and that orders for lime be placed at once. Dealers and manufacturers should have advance information as to farmers' needs so that orders can be combined and car space used to the best advantage. Delay in ordering may result in failure to obtain the lime until too late.

It is, moreover, the desire of the Railroad Administration that the season for delivery of lime, which has heretofore been from March to May, be extended to include the period from January to May, in order to relieve, as far as possible, the existing car shortage.

Purebreds Increasing in Bull Clubs.

Purebred cows in bull association herds have increased 249 per cent since 1918, according to the bull association directory recently compiled by the United States Department of Agriculture. The records for 1918 show that the number of cows owned by members of bull associations was 10,248, of which 597, or 5.5 per cent, were purebreds; while the records for 1919 show the total number of cows was 18,244, of which 2,086, or 11.43 per cent, were purebreds.

Comparing only those associations which reported in both 1918 and 1919, it is found that in 1918 there were 459 purebreds, and in 1919, 1,001 purebreds, or an increase of 118 per cent.

That the bull association is proving a great help to the small breeder is evidenced by the fact that the number of associations has increased from 44 in 1918 to 78 in 1919. The bull association guarantees the farmer the continued use of a good purebred bull at a cost that is within his reach, and the farmer has not been slow to realize its value. If the present rate of improvement is maintained it is certain that the future will show a steady replacement of the grades by purebreds, and that this will take place both by natural increase and by purchase until the members of bull associations will have practically all purebred cows in their herds. Without a bull association few of these smaller breeders would have found it possible to get into the raising of purebreds.

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PAPER FAMINE IS IMMINENT IF WOODLANDS ARE WASTED

Survey of Pulp-Wood Resources Shows Need for Conservation

Utilization of Mill Waste and Regeneration of Forests Urged by Specialists of U. S. Forest Service

In less than 20 years 95 per cent of the pulp and paper mills of the country, mainly those in the East, will have practically exhausted their supplies of spruce, hemlock, and fir—the principal woods from which the paper on which newspapers are printed is made.

The annual cutting of these woods in the New England States and New York is approximately 3,262,000 cords, and at this rate the supply will last approximately 17 years. The estimated annual cutting in the Lake States is 3,030,000 cords, and if continued will exhaust the supply in that region within 18 years. Pennsylvania, Maryland, Virginia, and North Carolina, with their smaller forest resources, are even worse off, the annual cutting being calculated at 1,470,000 cords, at which rate the spruce, hemlock, and fir will last but 10 years. Only in Alaska, Washington, Oregon, and California are the reserves in no immediate danger of exhaustion, if the cutting continues at the present rate of 2,218,000 cords a year.

These figures, of special interest because of the present paper shortage, are included in estimates compiled by the Forest Service of the United States Department of Agriculture. The data accumulated give additional emphasis to the demand for a nation-wide policy that will put privately owned forests on a permanently productive basis and will also result in utilizing mill waste for paper making.

Mill's Location a Factor

Even if the country's hemlock, spruce, and fir resources, including the vast forests of far-off Alaska, are lumped together, the supply of these woods will be sufficient to meet the lumber and paper demands for less than three-fourths of a century, assuming that the present rate of cutting continues. At first glance it might seem that a national supply for three-fourths of a century makes it unnecessary to worry over the lumber question for some time. But, as already stated, 95 per cent of the pulp and paper mills are located in the East; these are very expensive establishments, often costing millions of dollars, and can not be moved conveniently to new locations, nor can wood be shipped to them economically from great distances. Consequently talk of easily utilizing the far-off reserves is impracticable unless the present mills are to be scrapped and new ones built nearer the source of supply.

Up to 10 years ago the United States was self-supporting with regard to newsprint, but within the last decade the consumption has exceeded home production and promises to do so increasingly. In view of this situation two alternatives present themselves, according to Forest

(*Continued on page 5.*)

FORESTS MUST BE REGENERATED

Regeneration of the forests of this country on a more productive basis is the most important measure for perpetuating the paper industry in the United States, according to the Forest Service, United States Department of Agriculture. In the past forests have been cut extravagantly and little provision has been made for future growth. In the future, operations should be conducted so as to secure an increasing reproduction of species available for lumber and pulp.

Fortunately such species as fir and poplar are prolific seeders and may be reproduced naturally without difficulty. Spruce may also be reproduced under proper methods of forest management. As the cost of pulp wood increases, investments in plantations, especially near pulp mills, would recommend themselves under a proper conservation policy. The production of large quantities of wood near the mills would greatly reduce the cost of lumbering and transportation, as compared with the expense of operating remote tracts that furnish a low yield of wood. Young, thriftily growing forests will produce yields scarcely imagined by one who has been accustomed to deal exclusively with old timber.

Unless this country quickly and widely adopts such reforms, its paper and pulp industry will be permanently crippled, the Forest Service declares.

BETTER SIRES LEAD RAPIDLY TO IMPROVED FEMALE STOCK

Enrollments Furnish Striking Facts About Breeding

Developments in Federal and State Campaign Against Scrubs Encouraging to Owners of Live Stock

That the use of purebred sires is usually a forerunner to ownership of well-bred live stock in the various classes and breeds is shown by data on breeding just made public by the Bureau of Animal Industry, United States Department of Agriculture. The facts and figures compiled are based on records of the "Better Sires—Better Stock" campaign, which at the close of 1919 had been in progress just three months. A greater quantity of data will be needed before conclusive deductions may be made, but the following facts are considered of unusual interest to live-stock owners:

The use of purebred sires appears to lead automatically to the ownership of a considerable quantity of purebred female stock.

The use of purebred sires apparently results also in the culling out of scrub females, judging from the small proportion of scrub females to grade, crossbred, and purebred female animals owned by purebred-sire users.

Of all female stock owned by persons enrolled in the better-sires campaign at the end of the year, 71 per cent were purebred, 26 per cent were grades and crossbreds, and 3 per cent were scrubs.

The scrub females are believed to be the remnants of former inferior stock before purebred sires were used, since purebred sires lead automatically to either purebred, crossbred, or grade off-

spring, depending on the blood lines of the females used.

Low Percentages of Scrub Females

The percentages of purebred females found in herds and flocks owned by purebred-sire users was noticeably similar for the various classes of animals. In cattle the per cent of purebred females was 63.5, in swine 64, in sheep 63.

The per cent of scrub females in the same classes was: Cattle 3.6, swine 2, sheep 6.4.

Poultry figures showed the smallest per cent of scrub females in flocks headed by sires of pure breeding, the figure being 1.8. Poultry also showed the highest per cent (78.1) of females of pure breeding, and the smallest per cent (1.8) of scrub females.

Similar figures on horses, asses, and goats are not presented, as the enrollment of these animals is not considered sufficiently large at this time. Those classes, however, were included in the totals.

Results of Work for Better Bulls

Comments accompanying blanks of enrollment indicated that many live-stock owners had used purebred sires for a considerable period, which materially reduced the percentage of scrubs. This is likely to be true of a good many who enroll early in the campaign, but is evidence pointing strongly to the influence of purebred sires on improvement in quality of herds and flocks.

The drive which many States have been waging against scrub bulls was reflected in the enrollment figures. More purebred bulls were enrolled than any other class of live stock, except poultry.

At the end of December there were enrolled in the "Better Sires—Better Stock" campaign 6,200 animals, and in addition 8,949 poultry.

Facts Obtained with Special Care

Knowledge about the breeding of live stock in the "Better Sires-Better Stock" campaign is obtained with special care. First, the owner of the stock lists his animals kept for breeding on the enrollment blank in accordance with the official definitions for the various classes of animals with respect to their parentage. As the better-sires slogan indicates, all males must be purebred and of good quality.

Female stock may be of any breeding and spaces are provided for the listing of purebred, grade, crossbred, and scrub females. Then the classification is approved by the county agent in the county where the live-stock owner lives. In the relatively few cases where there is no county agent, the written indorsement of the blank by two experienced and disinterested live-stock owners is required.

Every person agreeing in writing, on the blank furnished, to use only purebred sires in his breeding operations receives an emblem of recognition issued cooperatively by the United States Department of Agriculture and the State in which he lives. So-called "red tape" has been reduced to a minimum and the emblems have been issued in most cases the day the blanks were received.

Female Stock Need Not Be Purebred

Though pointing out the foregoing observations—and especially the tendency for purebred-sire owners to acquire purebred females—the Department of Agriculture does not urge purebred female stock on the average farm. Whether purebred females should be kept is a matter of individual judgment depending on circumstances which the live-stock owner is best able to know. The successful breeding of purebred live stock as a business calls for close attention and considerable experience, both in production and marketing. By contrast, the purpose of the better-sires movement is to raise the average quality of all live stock in the United States.

The department therefore goes no further than to urge the use of good purebred sires. It believes that after having taken that step live-stock owners will continue to improve their domestic animals, raising either grades, crossbreds or purebreds—or some of each—whichever seems best suited to the kind of farming followed and to available markets.

Financing for Wool Growers Made Easier; Bonded Warehouse Receipts Secure Loans

The licensing of wool warehouses under the United States Warehouse Act gives to wool growers facilities for credit which approach those enjoyed by other business men, according to a statement issued by the Bureau of Markets, United States Department of Agriculture.

The purpose of the act, says the bureau, is to make it possible to issue a receipt of such integrity for wool stored in a licensed warehouse that it can be easily negotiated and widely used by the grower, warehouseman, manufacturer or other depositor owning it in financing the storage and marketing of wool.

Advantages of Receipts

The value of the licensed warehouse receipt is based on the following points: (1) It is issued by a warehouseman licensed by and bonded to the United States, who operates under Government supervision, a warehouse which has been examined and found to be a suitable place for the storage of wool by a Federal inspector; (2) the conditions under which the receipt is issued make it reliable evidence of the ownership, quality, quantity and other conditions of the wool for which it is issued.

Tentative rules and regulations for governing wool warehouses licensed under the act have been drafted, and hearings on these will be held in different sections of the country to afford all interested persons an opportunity to attend and discuss the proposed rules and regulations. The final hearing will be held in Washington beginning at 10 o'clock March 1, 1920.

Where Hearings Will Be Held

A representative of the Bureau of Markets will preside at each of the hearings, a schedule of which follows:

February 2, Deshler Hotel, Columbus, Ohio; February 3, Planters Hotel, St. Louis, Mo.; February 7, Elks' Home, Rawlins, Wyo.; February 9, House of Representatives Room, State Capitol, Salt Lake City, Utah; February 12, Room 1131, Merchants Exchange, San Francisco, Calif.; February 16, Multnomah Hotel, Portland, Oreg.; February 19, Olive Hotel, Miles City, Mont.; February 23, Stock Yard Inn, Chicago, Ill.; February 25, Boston Wool Trade Association, Boston, Mass.; February 27, Chamber of Commerce, Philadelphia, Pa.; March 1, Bureau of Markets, Washington, D. C.

COOPERATIVE LAWS FAVORED

Three States, Louisiana, New York, and Pennsylvania, have passed laws dealing with cooperative organizations based upon the suggested cooperative law published by the Bureau of Markets, United States Department of Agriculture, while similar legislation has been under consideration in other States during recent sessions of their legislatures.

Making beet-top silage does not necessarily involve a cash outlay for materials. The natural earth silo and stacking above the earth are both successful. Concrete side retaining walls are advisable under certain conditions, however.

HESSIAN FLY THREATENS 1920 WINTER WHEAT CROP

Serious Infestations Reported East of Rocky Mountains

Community Cooperation Is Essential if Success Is to Be Attained in Combating Pest—Suggestions for Control

Serious injury to the winter wheat crop of 1920 by the Hessian fly seems extremely probable. Reports received by the United States Department of Agriculture entomological experts in the Mississippi Basin winter wheat region indicate a rapid increase of the Hessian fly in that important wheat-growing district. These reports show that considerable young wheat already has been killed by the Hessian fly, and that serious losses to the crop of 1920 are almost certain.

Unless winter wheat growers east of the Rocky Mountains can be induced to unite in a concerted movement to observe the approved methods of combating the Hessian fly during the summer and fall of 1920, it seems that a disastrous general outbreak of the pest very probably will occur in 1921.

A shortage of farm labor and unfavorable weather conditions at planting time have combined to influence many wheat growers in planting their grain too early in the season. This has resulted in a heavy infestation of Hessian fly in practically all of this early planted wheat.

Damage Feared in East

A dangerously heavy infestation of Hessian fly also exists in the Piedmont Plain wheat regions lying east of the Appalachian Mountains and embracing Maryland, Virginia, and eastern Pennsylvania. Complaints of serious Hessian fly damage in that region have already begun to be heard, and there is at present every indication that early-sown wheat in these States will be considerably, if not seriously, reduced in yield this year.

There is no remedy for the Hessian fly when once it takes possession of a crop of wheat. Grain that is so heavily infested as to afford little promise of a profitable yield should be deeply plowed down and lightly harrowed as early in the spring as is practicable. This should be done by March 1, if possible, so as to bury the stubble and prevent a large part of the flies from issuing and reinfesting other fields of growing wheat or barley. The land may then be planted to oats, corn, or other immune, quick-growing crops, so as to avoid a complete loss of profit from the land during the current year.

How to Fight the Fly

The methods for combating the Hessian fly are, in brief, as follows:

1. Practice crop rotation. Do not sow wheat on stubble if it is possible to avoid doing so.
2. Plow under all infested stubble, where practicable, soon after harvest.
3. Destroy all volunteer wheat by harrowing, disking, plowing, or some other method.
4. Plow all land to be sown to wheat as early and deeply as existing conditions permit, and prepare a thoroughly pulverized and compacted seed bed.
5. Conserve moisture against a period of drought at seeding time.
6. Use good seed.
7. Fertilize.
8. Sow wheat during the fly-free period, as advised by your farm adviser or State experiment station.

Adhere to these practices every year, whether the fly is abundant or scarce. They will help to keep it scarce.

Community cooperation is essential if success is to be attained, because one infested field may furnish enough flies to damage the wheat for several miles around.

FACTORS TO BE CONSIDERED IN BUILDING AN ICE HOUSE

Construction of a farm ice house depends to a great extent upon local conditions, the size of the house, and the difficulty of obtaining ice. These factors help to determine the sum that may wisely be spent for such a building. Where ice is expensive or hard to obtain, a better constructed and insulated and therefore more expensive ice house is advisable. Where natural ice can be harvested and stored cheaply a cheap structure is usually satisfactory and the loss from melting ice is a small consideration.

The cost of harvesting and storing, the interest on the money invested, and repairs and depreciation on the building are to be considered in relation to the ice loss from melting; and the type of house to be built depends upon these factors. It never pays to build permanently in other than a substantial manner, and careful thought should be given the matter before erecting a cheap makeshift that will not give adequate service.

Various types of ice houses, how to build them, and other phases of the subject are discussed in Farmer's Bulletin 1078, "Harvesting and Storing Ice on the Farm," which can be obtained free of charge from the United States Department of Agriculture.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended January 17, 1920:

Trend of the Butter Industry in the United States and Other Countries. Department Circular 70.

Trend of the Cheese Industry in the United States and Other Countries. Department Circular 71.

The Use of Machinery in Cutting Corn. Farmers' Bulletin 992.

Onion Diseases and Their Control. Farmers' Bulletin 1060.

Judging Beef Cattle. Farmers' Bulletin 1068.

The Fowl Tick and How Premises May Be Freed From It. Farmers' Bulletin 1070.

Growing Beef on the Farm. Farmers' Bulletin 1073.

Beet-Top Silage and Other By-Products of the Sugar Beet. Farmers' Bulletin 1095.

Construction and Fire Protection of Cotton Warehouses. (Professional Paper.) Department Bulletin 801.

Quality and Value of Important Types of Peat Material. (Professional Paper.) Department Bulletin 802.

Two Leafhoppers Injurious to Apple Nursery Stock. (Professional Paper.) Department Bulletin 805.

Soil Disinfection with Hot Water to Control the Root-Knot Nematode and Parasitic Soil Fungi. (Professional Paper.) Department Bulletin 818.

Lumber Export and Our Forests. Office of the Secretary Circular 140.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

In Klickitat County, Wash., where crows have become a serious menace to the almond crop, green almonds poisoned with strychnine were found to be a most satisfactory bait in exterminating the birds, says a representative of the Biological Survey in that section.

The fact that there are still large quantities of standing timber in the far West does not mean that our country is not already suffering from the consequences of forest destruction. Europe will look first to our Eastern States for lumber, because of the shorter distance. And the eastern supplies of old timber are rapidly approaching exhaustion.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FASHION SHOWS POPULAR WITH RURAL AUDIENCES

When a playwright decides to write a rural play the chances are more than even that he will have the heroine wear clothes which would excite ridicule and scorn if worn on a city street. It seems to be a fixed fact in the minds of many fiction and play writers, especially those who have never been outside of Greenwich village, that all of those who live in farm homes care nothing and know less of up-to-date fashions in clothes.

If such conditions ever did exist, it was a long time ago. To-day a visitor would go some distance before he found the prototype of "Sis Hopkins" or "Farmer Hayseed."

Farm women to-day like up-to-date clothes, and fashion shows in their locality always bring out a good crowd. There are fashion shows and fashion shows, but the kind put on by demonstrators sent out by the United States Department of Agriculture and the State agricultural colleges, where good-looking clothes within the purses of those present are shown, are on the increase. A fashion show of this type is usually held at some central hall. The "models" are members of the local clothing centers or clubs. The clothes exhibited by the models are those that have been made in club work under the instruction of the local leader and the State specialists. Oftentimes, especially if the results have been unusually good or the idea novel, the garment is a "made over."

In Marion County, Mo., a four-days' demonstration was recently given by the State clothing specialist. These demonstrations included readjustment of patterns, fitting, finishing, remodeling, designing, trimming, and the use and manufacture of a dress form. Old garments were brought to the remodeling demonstration, and the patterns were pinned on them. On the days when trimming and designing were studied, the audience brought thread, needles, and material, and worked under the supervision of the specialist and her assistants.

The last day a fashion show was held to attract the attention of women who were not already enrolled in one of the clothing clubs. At this show nine women wore afternoon dresses they had made, five wore good-looking street dresses, and four attractive cotton or gingham frocks. Some of the models wore becoming hats, which they had made in class, to match their costumes. Two babies wearing sensible, comfortable clothes, all made at home, including their caps and shoes, made a hit with the audience.

To display the garments for girls of different ages five school girls took part. There were two boys on the stage, one wearing a pair of trousers made from father's old ones, and the other displaying with pride a comfortable homemade school shirt. During the fashion show the clothing specialist lectured on attractive color combinations, trimmings, designs, lines, sleeves, and finishing.

The result of the show is that every clothing center in Marion County plans to have a clothing demonstration of its own within the next few months. The interest at the show in that valuable aid to the home dressmaker, a dress form, was keen. Twenty were ordered by the audience and many more are planning to buy or make one later.

SNOW ON ICE IS USED TO MAKE ICE THICKER

When snow falls on an ice pond before the ice is thick enough to harvest, advantage is sometimes taken of the tendency of the snow's weight to sink the ice. Holes are made in the ice, and water is allowed to rise through the openings and flood the surface. If the weather is very cold the mixture of snow and water quickly freezes and increases the thickness of the ice.

The surface should not be flooded, however, unless the weather is cold enough to freeze the melted snow solid. If only the top surface of the snow freezes, a crust forms which makes scraping difficult, and also injures the quality of the ice. In that case planing or scraping the crust of snow from the ice becomes necessary. The location and size of the holes for wetting down the surface should be planed so that the entire surface is completely covered with water. Ordinarily this is accomplished by small holes 1 or 2 inches in diameter and from 6 to 8 feet apart.

MICHIGAN COUNTY FIRST IN DOMINANT BREED LIST

Livingston County, Mich., is the first county in the United States listed in the better-sires movement as having a dominant breed of live stock. The breed is Holstein cattle. According to the result of a live-stock survey reported to the United States Department of Agriculture by County Agent F. S. Dunks, Livingston County contains 250 registered Holstein bulls. One hundred purebred sires of a single breed is the number needed before that breed is officially recognized as dominant in the county. Livingston County thus exceeds the minimum by two and one-half times.

Of the 321 purebred herds of cattle in the county, 275 are Holsteins. The total number of purebred cattle is 3,688, of which 3,240 are Holsteins. About 76 per cent of the bulls in the county are purebred, 22 per cent grade, and 2 per cent scrub. Shorthorns and Jerseys are the second and third most prominent breeds.

COUNTY AGENTS MEET IN FOREST

The recent annual conference of Connecticut County agricultural agents and extension specialists was unique in that it was not held at the State agricultural college, as has been the custom. Through the courtesy of the State forester the use of the lodge in the State forest was secured. The bunks and cooking outfit of the forestry crews were used and the agents were not required to bring any supplies or equipment except blankets. Attendance at all sessions was 100 per cent owing to the absence of diverting influences, and the 20 men in attendance voted unanimously to hold a similar conference each year.

ISSUES NEW LIVE-STOCK POSTER

To present pictorially the results of good breeding methods, the United States Department of Agriculture has prepared a four-color poster which is now ready for distribution in two sizes, 18 by 30 inches and 10 by 14 inches.

It deals particularly with the better-sires movement and is available to those interested in live-stock improvement. Requests, stating size desired, may be addressed to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Reproduction of the poster appears on page 8 of this WEEKLY NEWS LETTER.

The best practices of feeding the by-products of the sugar-beet crop will yield a net profit equal to half the net profits usually had in growing and marketing the crop of beets.

PAPER FAMINE IMMINENT IF FORESTS ARE WASTED

(*Continued from page 1.*)

Service experts and representatives of large wood-using industries. The country must depend increasingly upon Canada, eventually abandoning many of its own mills, or the Nation's policy with regard to its private forests must be radically changed. Canada now has 90 paper and pulp mills which produce approximately 2,100 tons of paper a day, of which 89 per cent is available for export. Of all supplies of paper, wood, and pulp used by the United States about one-third now comes from Canada.

Available Supply in National Forests

While the supplies of pulp wood in Alaska and the Northwest are very great, only about 5 per cent of the mills are located in those regions. So long as publishers can obtain Canadian paper more cheaply than they can get it from the West, it is to be expected that they will buy from Canada. Nevertheless, there are several factors which should gradually bring western paper into competition with the eastern Canadian product, according to forest experts. There are quantities of wood in the West available at stumpage prices much less than in the Northeast. Much of this wood is on the National Forests, and, therefore, is available without the carrying charges that must be figured against large investments in land. Furthermore, the yield per acre of forests is much greater in the West than in the eastern Canadian forests, and there are large water powers available in the West. Certain disadvantages, such as high wages and high freight charges, must be recognized in considering the supplies in the West, but it is believed that these do not counteract the advantages.

Must Adopt Permanent Policy

The Forest Service points out, however, that whether paper interests rely increasingly upon Canada, or upon increased use of our western resources, in either case these are temporary expedients. In the long run the country must solve the paper problem on the basis of a *permanent* wood supply. To this end it is urged that the mill waste be utilized for paper making and that the forests of this country be regenerated and administered on a more productive basis.

Mill waste, including slabs and edgings, is well adapted for paper making by one of the three chemical processes now commonly employed. But only about 3 per cent of the wood used for pulp is mill waste, and this is evidently a very small portion of all the slabs and edgings from spruce, fir, and hemlock now being made into lumber. Here, undoubtedly, is a big field for development, as it is estimated that there must be an annual waste of 1,600,000 cords of these species alone.

Even more important than the utilization of mill waste is the regeneration of the forests for the perpetuation of the paper industry in the United States. The policy of wastefully cutting the forests and making little provision for future growth must be abandoned speedily, say forest experts. In the future, operations should be so conducted as to secure increasing reproduction of trees valuable for lumber and pulp. Fortunately such species as fir and poplar are prolific seeders and may be reproduced naturally. Spruce may be reproduced under proper methods of forest management, though with more difficulty. As the cost of pulp wood increases, investments in plantations, especially in the neighborhood of pulp mills, will commend themselves. The growing of large quantities of wood close to the mills will greatly reduce the cost of lumbering and transportation. Young, thrifty, growing forests will produce yields scarcely imagined by one who has been accustomed to deal exclusively with old timber. It is urgently recommended that in this connection the practice of Sweden be given serious consideration. In that country the mills employ technically trained foresters who prepare accurate figures concerning the yearly growth of the forests which serve as a rigid basis for the annual cut of timber.

It is the wood-using industries rather than the lumber companies that are especially interested in applying conservation to the national lumber supply, according to the Forest Service. Likewise, it is the publishers rather than the pulp companies which must eventually pay the penalty for wasteful lumbering and which must, therefore, take it upon themselves to guarantee the perpetuation of the Nation's pulp supplies.

COMMUNITY FAIRS PLACE CLUB WORK BEFORE PUBLIC

Community fairs of particular educational value were held last fall in six centers in Spokane, Wash. Many hundreds of people saw a comprehensive exposition of the different phases of food preservation which had been demonstrated to the club girls and women by the home demonstration agent. The points about which women had seemed to need the most help were especially emphasized.

At the different centers girls competent to give the demonstrations canned fruit and vegetables, showed how to make a pectin test, and gave directions for drying and brining. Other groups demonstrated the uses of different types of containers and how to avoid or overcome difficulties which might arise with them.

Each fair was different in character. At one center the commercial side of canning was emphasized. The club girls there were finishing a large order given them by the county for the tuberculosis hospital. With a small order the preceding year the club members had proved they could turn out a superior product. In 1919 they were given the entire order. One thousand cans of beans, 600 gallons of peaches, and 125 gallons each of apricots, berries, and tomatoes were put up by the club girls for the county hospital. Six hundred gallons of tomatoes were wanted, but the entire order could not be filled, as school opened and the school kitchens used for the canning centers were needed.

The fairs proved effective in interesting the public in the club work for women and girls which is supervised by the United States Department of Agriculture and the State agricultural colleges.

Several groups of representative women and men attended each of the fairs to inspect the quality of the work, listen to the demonstrators, and inquire as to its effects on community life.

GIRLS MAKE POULTRY RECORDS

The hens owned by poultry club girls in Mississippi do not lay golden eggs, but they lay enough of the ordinary kind to permit their owners to buy the golden variety if they so desire.

One of these successful young poultry growers is Gregory Russell, who lives in Lawrence County, Miss. This is her first year in poultry club work. She bought all of the dry feed for her flock but raised a tenth-acre of oats and rape for their green feed. This 15-year-old girl's net return this year from her poultry work, which was supervised by the United States Department of Agriculture and the State college, was $256.

Vivian Smith, of Yalabusha County, Miss., has been in poultry club work for four years. This year her net return from the work was $386.86. She started four years ago with seven chickens and made a net return that year of $70. The next year she doubled this amount, and the third year she cleared $240 from her poultry. Miss Smith has the largest flock in her section. She believes in selling the old hens, keeping the pullets for layers, and giving the birds plenty of green feed.

Both of these girls won a recent trip to Washington for making the highest return on their project of any girl in their districts.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nation.

Grain Violations Punished.

The presence of teeth in the Grain Standards Act which governs interstate traffic in grains for which official standards have been fixed was proved recently in Kansas City when the first convictions for violation of the statute were recorded. The criminal informations were filed under section 4 of the act, which provides that grain which is sold by grade shall not be shipped from one State to another, except between noninspection points, unless it has been inspected by a licensed inspector in accordance with the law to determine the grade of the grain. The defendant pleaded guilty.

The Bureau of Markets, United States Department of Agriculture, which administers the Grain Standards Act, has been conducting educational work to acquaint all producers and handlers of grain with the Federal requirements, and hopes that what has been accomplished in this field will have the result of keeping violations at a minimum.

Possible Danger in Cooties.

Cooties, as well as crowned heads, suffered as a result of knowledge gained in the World War. The cooties were largely laughed at—by those who didn't have 'em—but that they are no laughing matter is indicated by a recent report to the Bureau of Entomology, United States Department of Agriculture, that if louse-borne diseases should be introduced in this country their appearance in epidemic form is not impossible. The Bureau of Entomology is one of the agencies that during the war and since has investigated the subject of body lice, which was practically a new field until war conditions demonstrated its importance. Until the cooties came into their war-time prominence much more attention had been given to insects attacking plants and lower animals than to those attacking man.

A Bureau of Entomology investigator has concluded that in a city of 500,000 population, where sanitary standards are high, 2,500 would be a liberal estimate of the normal number of cases of pediculosis (lousiness) likely to occur in one year. As factors favoring the development of lice he lists continuous wearing of clothing, personal neglect due to disease, personal neglect due to old age, personal neglect and loss of self-respect due to drunkenness and dissipation, and personal neglect due to discouragement and loss of ambition. In most of the cases investigated, two or more of these factors operated together. Contact with verminous persons or their clothing or articles of personal use were found to be principal methods of transmission.

Cleanliness is the surest safeguard against lice. The beneficial effect, from the standpoint of the general population, of bathing facilities, and sanitary conditions in jails and cheap lodging houses, is strongly indicated in the report.

Ice Yields 826 Tons to Acre.

"Speaking of acre yields," said a specialist of the United States Department of Agriculture the other day, "how many crops are there that can beat 826 tons to the acre? With ice 8 inches thick, that would be the acre yield of a well-harvested pond or creek." And the specialist, who is concerned with encouraging farmers, especially dairymen, to harvest enough of this plentiful winter crop to keep the milk cool next summer, estimated the acre value of the ice harvest. "The commercial value would average about $3 a ton," he said. "That would make an acre of ice worth $2,478. Of course the farmer could not expect to sell the ice for that, and would need only a small part of an acre; but that is what it might cost him if he had to buy it during the sizzling days of next summer. During warm weather the use of ice in cooling milk and cream for shipment is often the means of saving many of these products from spoiling." Milk should be cooled to a temperature of 50° or even lower before shipping, to insure the product arriving at its destination sweet. Ordinarily this temperature can not be obtained without the use of ice.

There is nothing difficult about harvesting ice. Few tools are required, and the work comes at a time when farm work is least pressing. Where there is a pond or stream available, every farmer should take advantage of the opportunity to harvest this crop.

Declaration Against Scrub Sires.

"We, the undersigned citizens of Summerfield and vicinity, will comply with the rules adopted by the Department of Agriculture in eradicating the scrub sire. We have no county agent and had to take this matter up ourselves."

With the foregoing explanation, 14 live-stock owners in an Ohio community signed a letter applying to the United States Department of Agriculture for enrollment in the better sires campaign. The breeder who transmitted the communication raises pure-bred Delaine sheep as a prominent part of his live-stock operations.

Cheaper Diet Increased Beef Profits.

Less gains in weight, but greater profits, resulted from feeding a herd of cattle in a velvet bean field, compared with another herd fed in a similar field for only a short time and then given more costly feed, including sorghum silage, and cottonseed meal. These two feeding tests were conducted on private farms in Florida in cooperation with the Bureau of Animal Industry, United States Department of Agriculture.

In one case 220 native steers, 3 to 5 years old and averaging 582 pounds per head, were turned into an 80-acre field of velvet beans early in November. After 28 days the animals averaged 590 pounds and the feed was changed to sorghum silage, velvet beans in pod, and cottonseed meal. On the 56th day the weight was 589 pounds. On the 84th day when the test ended it was 644 pounds. The average daily gain per head was approximately three-fourths of a pound. The ration was not the typical fattening ration used heretofore but was one used to secure a comparable degree of finish. Had grain been fed in addition, probably a greater gain would have been secured. There was a $2 margin and a profit of $4.02 per head.

In the second experiment 116 native steers similar to the first herd were pastured on an 85-acre field of velvet beans for 72 days, beginning at about the same time of year. They lost considerable in weight for a part of the second month, but there was a daily average gain for the whole period of a little more than one-fourth pound per steer. The pasture charge in this case was $9 per acre, and the profit $6.35 per head. The margin was $2, as in the other case.

Small Locust Brood Due.

This is another "seventeen-year-locust year," but in a small section of the

country—mainly the valley of the Connecticut River in Massachusetts and Connecticut, with a separated colony near Fall River, Mass. The periodical cicadas due to appear this year are officially catalogued as Brood XI. The brood was recorded as early as 1767, and its genuineness was fully established in 1869. Like most small broods in settled regions, it is being greatly reduced in numbers, and it was difficult to find records of the brood in 1903, its last appearance. Entomologists will be mainly interested in the brood this year because its probably further thinned ranks will indicate the effect of building and road construction and other development in its territory since the brood "dug in" 17 years ago. Every time a concrete cellar is built over the resting place of periodical cicadas, the insects naturally fail to appear when the period of their long hibernation comes to an end.

Farmers, fruit growers, and others are assured by the Bureau of Entomology, United States Department of Agriculture, that they have little to fear from this "most interesting insect in the world." Late in May or early in June the shrill drums of the cicadas will resound in many a wooded area, but their trilling is worse than their bite. Control measures vary with conditions and will be told to inquirers who address the Federal Bureau of Entomology.

The distribution of Brood XI by States and counties is as follows:

Connecticut.—Hartford.

Massachusetts.—Bristol, Franklin, Hampshire.

Rhode Island.—Providence.

Hunters Using Airplane Arrested.

The first arrest under the Migratory Bird Treaty Act for hunting wild fowl from an airplane was made in Missouri recently when the long arm of the law reached into the air and seized two men for hunting and killing wild geese from an air craft. The arrest was made by a warden of the Biological Survey, United States Department of Agriculture, which administers the Migratory Bird Treaty Act. Following their arrest the hunters made the trip to the office of the United States Commissioner at Caruthersville, Mo., in their plane. They had previously boasted of their ability, while flying, to herd the geese more effectively than sportsmen on the ground can possibly do. Hunting of the sort in which they engaged is specifically forbidden by the Federal law and the regulations thereunder. Several States have passed laws forbidding hunting from airplanes, among them being California, Michigan, New Jersey, North Carolina, and South Carolina. There is considerable sentiment in sporting circles against the practice, on the ground that it is unsportsmanlike.

Exterminating Harmful Animals.

Live stock and wool valued at $20,000,000 are lost annually through the depredations of wild animals. The value of farm produce and forage destroyed each year by rodents is approximately $300,000,000. It is estimated that the households of this country sustain an annual loss from rats and mice of $200,000,000.

These figures sum up certain of the larger losses due to destructive wild life which the Biological Survey of the United States Department of Agriculture is engaged in reducing as rapidly as possible. A force of between 400 and 500 experienced hunters was employed by this bureau during the past year to kill predatory animals, many of which were infected with rabies; this disease often is spread from the wild creatures to domestic animals and frequently endangers humans. In this work of extermination the States and numerous private organizations have had an important share.

The work of killing rodents—prairie dogs, ground squirrels, jack rabbits and cottontails, pocket gophers, native mice, wood rats, cotton rats, etc.—is also carried on with the cooperation of the States. During the past fiscal year ground squirrels were poisoned on more than 14,000,000 acres. In one Idaho county alone 40,000 rabbits were killed. In the same period from 75 to 95 per cent of the prairie dogs found on a total of 2,200,000 acres were destroyed.

Preventive Found for Apple Scald.

Most people have learned that, if they sleep in an unventilated room, they poison themselves with the gases exhaled in their own breath. But it probably has not occurred to many people that apples asleep or semi-dormant—in cold storage—do exactly the same thing. It had not occurred to anybody, in fact, until very recently, when some specialists in the Bureau of Plant Industry, United States Department of Agriculture, worked it out. It is not always possible to leave the windows open in the sleeping room of the apples, but the specialists have found a way of getting around this difficulty in experimental quantities by the absorption in certain fats and oils of the poison that is breathed out by the apples.

The diseases which may be thus caused in apples is known as apple scald and manifests itself by turning the skin of the apple brown. While the scientists have discovered that the disease is due to a gas or gases breathed out by the apples, they have not been able to identify the gas or gases. But they have discovered that, if the apples are placed in wrappers impregnated with certain fats and oils, the poison is absorbed and the disease either prevented or reduced to a negligible quantity. In barrel experiments in which only part of the fruit was wrapped, the scald was greatly reduced on apples adjacent to the wrapped ones. Ordinary commercial apple wrappers caused little decrease in scald and paraffin wrappers were but little better.

Several other points of importance were determined as a result of the experiments. Mature fruit scalds less than immature, but fruit just changing from green to yellow has scalded worse than either green or yellow fruit. Well-colored red fruit surfaces have been practically immune. Heavy irrigation of apple trees increases the susceptibility to scald in the apples produced. Apples in ventilated barrels developed less than a third as much scald as those in commercial barrels if both were held in a storage room that received occasional ventilation. If the storage room was not ventilated, or if it was only poorly ventilated, the ventilated barrels caused very little decrease in scald. Apples near the aisle or near a door scalded far less than those in the bottom of the stack. Boxed apples exposed to a continuous air current of 88 miles an hour were practically free from scald while similar apples that did not receive the constant fanning became badly scalded. Stirring the storage air was found to be more important than renewing it. Scald was greatly increased on fruit delayed in storage unless well ventilated during the delay.

Heavy Penalties for Hunters.

Five hundred dollars, the maximum fine, recently was levied by a judge in Michigan against a hunter for selling 32 ducks in violation of the Migratory Bird Treaty Act. Another violator of the same law, in Connecticut, who has been guilty of repeated offenses was sentenced recently to three months in jail. This offender was not given the alternative of paying a fine. The Migratory Bird Treaty Act has been in force since July, 1918, and several hundred convictions have been secured. These cases are cited by the Biological Survey, United States Department of Agriculture, which administers the law, to show the increasing concern with which the courts regard violations of this important statute, designed to protect migratory birds, insectivorous birds and nongame birds.

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Weekly News Letter

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BOTULINUS POISON NEVER PRESENT IN SOUND FOOD

Officials Warn Consumers to Watch for Signs of Spoilage

All Food Showing Slightest Evidences of Decomposition Should Be Discarded—Proper Sterilization and Sealing Gives Safety

Botulinus poisoning, which recently killed six in one family in New York, is caused by eating spoiled food infected with the bacillus botulinus, say the officials of the Bureau of Chemistry, United States Department of Agriculture, who have investigated this and other poisoning cases in connection with the enforcement of the Food and Drugs Act. In the New York case death was caused by botulinus poison in ripe olives. The olives remaining in the bottle in this case had an offensive odor. The same condition was found in the food in other cases investigated by the department. All spoiled food does not contain this poison, but any spoiled food, even though the spoilage be slight, may contain it, and for this reason, say the officials, all food showing even the slightest unnatural odor, unnatural color, swelling of the container, signs of gas, or any evidence of decomposition whatever, should be discarded.

Dangerous Foods Seized

The Department of Agriculture has used every possible effort and gone to the limit of its legal authority to remove all dangerous foods from the market by seizure under the food and drugs act, say the officials. Each time when botulinus poisoning has occurred food inspectors have traced through the channels of commerce the batch from which the poisonous food came and have used all measures under the law to remove it from the market. Samples from all other brands put out by the packer have been examined. Since the law authorizes seizure in such cases only when the foods are actually found to be decomposed or to contain poisonous ingredients, since only an occasional package in millions is infected with bacillus botulinus, and since it is physically possible to open and examine but a comparatively few of the millions of cans entering interstate commerce, it is beyond the power of the authorities to protect the public completely. For this reason they emphasize the necessity for scrupulous care on the part of persons opening and serving foods to discard anything which is spoiled. In products not obviously spoiled, if there is doubt in the recognition of the odor proper to the product, thorough cooking will remove the possibility of danger from botulism. If spoilage is apparent, destruction is recommended by the specialists.

Casual Examination Ineffective

Nobody knows just how the bacillus botulinus gets into any particular food. It has been found in articles put up in the home by the careful housewife and in goods packed in commercial establishments. It may be present in a few packages only of any lot. There is no method, the officials say, by which the packers or home canners can assure themselves by casual examination before canning that the product does not contain the bacillus botulinus.

If the food were in all cases properly sterilized and perfectly sealed the development of the poison would be impossible, but no method of preserving food has yet been found, the specialists say, that eliminates the occasional spoiled package. Failure to sterilize may not become apparent for weeks or even months after the canning of the article. If signs of spoilage have appeared when the can is opened, it is clear warning that the product is no longer edible. There is no greater probability of botulinus poisoning in olives than in many other food products either commercial or domestic. Until this year it has been more commonly found in string beans, asparagus, and the like. It was originally found in sausage. It has been found in cheese; it is present sometimes in stock food, such as moldy hay and other kinds of spoiled forage, but it has never been found in the department investigations in any kind of food that was not spoiled.

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APPEAL TO GRAIN SUPERVISOR GIVES PROTECTION TO BUYER

Machinery Is Simple Even for Buyers Remote from Inspection Offices

Request May Be Made by Telegraph, Telephone, or Letter and Car Will Not Be Shipped Unless Grain Conforms to Grade Sold On

A grain dealer at a country point where there was no licensed grain inspector received a carload of shelled corn that he had bought for No. 2 at a terminal market, basis inspection certificate at that market.

The certificate designated the corn as No. 2, but when the car was received the buyer discovered that while No. 2 corn was on top of the load a layer at the bottom contained a large percentage of "bin-burnt" kernels. This "bin-burnt" corn was not unloaded.

The matter was taken up with the shipper, but he would do nothing, saying the corn was bought on shipping-point certificate. So the buyer communicated with the supervisor at the nearest Federal grain supervision office. As the car in question was an intrastate shipment, the buyer was told that the Federal supervisor had no jurisdiction. However, the supervisor suggested that a licensed grain inspector be called to inspect and grade the portion of the corn remaining in the car. This was done and the inspector issued a certificate showing the corn to be badly heat damaged. The supervisor also sent a grain sampler to secure a sample of this inferior grain in the car for the purpose of taking up the misgrading with the original inspector and the shipper.

Shipper Forced to Settle with Buyer

The buyer notified the shipper of the supervisor's action, and the matter was also brought to the attention of the directors of the grain exchange at the point of shipment. The result was that the shipper hastened to settle with the buyer; had he not done so, the directors

of the exchange threatened to expel him.

The buyer was so pleased with the outcome of his complaint to the supervisor that he declared in the future he would appeal every carload of grain purchased, which moved in interstate commerce, as a check on the grade before the car had left the terminal market.

Although the value of an appeal—that is, appealing to some authority to have a grade that had been assigned to a certain car or lot of grain changed or verified—is well understood by grain dealers in the large markets, it is not fully realized by many other shippers or receivers.

An appeal may be described as being the action taken by a person interested in the grading of a car or lot of grain who questions the grading of the licensed inspector, by calling upon a Federal grain supervision office to determine the true grade under the United States grain standards act. Or an appeal may be taken as an assurance that the grain to be shipped is of the grade purchased.

How to Take an Appeal

An appeal must be taken before the close of business on the second business day after the day of inspection; that is, for grain received. The grain must not have lost its identity nor have left the place where inspected. This provides for receivers at the large markets; also, for buyers at other points where licensed inspectors are located. It does not, however, provide for dealers who buy grain at the large markets and who are located at points at which there is no licensed inspector. Yet such dealers may secure the protection that an appeal affords.

This may be done, as already mentioned, through the Federal grain supervision office at the market from which the grain will be shipped. In such instances it is necessary for the buyer to make a request—this may be done by telegraph, telephone, or letter—of the grain supervisor to sample and inspect the grain before the car has gone forward. This is taking an appeal as insurance; for, as the certificate of grade issued by the office of Federal grain supervision supersedes that of the inspection department, the car of grain will not be shipped unless the grade is what the buyer ordered. Stated in another way, a dealer orders a car of No. 2 white corn of a shipper at some terminal market. Then he wires the office of Federal grain supervision at that market that he wishes to take an appeal from the grade assigned to the grain by the licensed inspector. This may be done not because he thinks the grade loaded is not the grade he bought, but as an assurance that it is.

Accordingly the Federal grain supervisor has a sample taken from the car and the grade determined. If, for example, the grain is corn, and No. 2 white has been ordered, and the sample grades No. 2 white, a certificate is issued for that grade and the car goes forward. But if the grade is found to be No. 3 white, or mixed instead of white, the shipper knows that it will be useless to ship the grain, unless the buyer is willing to accept the corn at a discount from the original price.

But if a request should not be made to the office of the Federal grain supervision to have the grade of the grain appealed from before shipment, and should the interior dealer find on receiving the grain that it is not up to the grade he bought, he still has a remedy, as shown in the instance cited in the opening paragraphs of this article.

Taking an appeal is not difficult, nor is it a complicated procedure. All that is necessary is to secure a blank "complaint form" from a Federal grain supervision office—there is such an office at every large market center—and fill in the information called for. It should then be left with, or sent to the office of Federal grain supervision in the district in which the grain was inspected.

Appeals do not cause serious delays, for the Federal grain supervision offices dispose of them promptly.

ENROLL FOR BETTER LIVE STOCK

A noteworthy result of the "Better Sires-Better Stock" movement is the mutual interest in purebred sires already manifested by persons having varying degrees of experience in the live-stock business.

Records of the United States Department of Agriculture just made public show that persons agreeing to use only purebred sires in all classes of live stock kept include general farmers, ranchmen, prominent breeders, and members of boys' and girls' clubs. In Vermont the first person to enroll was the commissioner of agriculture. About 10 per cent of all names on the records are those of women.

One of the most serious handicaps to successful poultry raising in the Southwest is the insidious attack of the chicken tick, fowl tick, or so-called "blue bug." In the infested region it is not uncommon for people to dispose of their chickens because of the ravages caused by this pest, and those who retain flocks often do so at considerable financial loss. Farmers' Bulletin 1070, "The Fowl Tick," tells how premises may be freed from this parasite.

PROMISING MARKETS INDICATED FOR GROWERS OF WINE GRAPES

Large Quantities Manufactured into Nonalcoholic Wines and Sirups

European Varieties Recently Acclimated in California Promise to Compete Successfully with Fruit Now Imported at High Prices

Grapes from the wine sections of California are likely to find a number of outlets never thought of while the making and selling of wine was permitted in the United States. Several such outlets were indicated by experiences during the vintage of 1919, according to specialists of the United States Department of Agriculture who recently visited the wine-grape regions. The problem, however, is still a big one. Not only are uses and markets to be found for the product of 175,000 acres of wine vineyards but for the considerable portions of table and raisin varieties that formerly were made into brandy. The leading variety of raisin grape, the Alexandria, usually has a heavy second crop, which matures too late for drying, and this was formerly used in brandy making. Of the leading shipping grape, the Flame Tokay, only the best clusters are usually shipped for table purposes, and the inferior clusters were converted into brandy. Now, other markets must be found for the culls of raisin and table grapes.

During the past season there was a very heavy demand at high prices for anything that could be called grapes. Only a few growers, therefore, attempted experiments in finding new uses, and these few experiments were incomplete, but they indicate probably satisfactory results when they are more fully tried.

Many Shipments to East

At least 4,000 cars of fresh wine grapes were shipped into the Eastern States and made into so-called nonalcoholic wines and grape sirup. A large gallonage of unfermented juices was made, a large per cent being pasteurized and put up in 50-gallon barrels. Much of this has already been shipped east.

Considerable work was done in sun drying and dehydrating wine grapes, and the product found a ready market at prices much higher than those paid for raisins.

Important grape varieties that have been imported and tested by the United States Department of Agriculture have paved the way for some new features of the grape industry. Among them are a number of varieties of shipping and stor-

age grapes that are considered superior in every way to the varieties heretofore grown in this country. Some of them ripen at the same time as varieties now grown, some earlier, and some later, thus offering the opportunity for greatly extending the grape marketing and consuming season. In addition, a much larger demand for table grapes can be created than has existed up to this time because the new varieties have superior eating qualities. One of these is annually imported from Europe in considerable quantities in late winter and sold at high prices. It thrives so well in California that it could be sold at prices considerably under those of the imported product and still net the grower a good profit.

Large Importations Supplanted

The work of the Department of Agriculture has shown, also, how to fruit the Ohanez, the best keeping variety of all storage grapes. This should make it possible, with California-grown Ohanez packed in redwood sawdust, to supplant large importations of Ohanez and other Almerian grapes packed in cork dust.

The Department of Agriculture has also demonstrated that current grapes can be grown in this country by grafting on resistant stocks and girdling the vines while they are in bloom. From 4,000 to 8,500 acres of these grapes would be needed to produce the 34,000,000 pounds of dried currants imported annually during the decade previous to the war. In some districts where raisin varieties are so late in ripening that they can not be dried, the currant varieties ripen early enough to be dried and put away before the first rains come. In districts where the raisin varieties succeed, currants, it appears probable, can be grown as an advance crop and cured and stored by the time the raisin grapes are ripe, thus furnishing a longer and more profitable period of employment for the labor that must be kept in raisin vineyards.

In the distinct dry wine districts where many of the vineyards are on phylloxera-resistant stocks, regrafting can be done with other varieties, if the vines are not grafted too near or below the ground. Where there are vineyard plantings of resistant stock they can be grafted to such varieties as are found most desirable.

As a result of the depletion of our forests, industries dependent upon wood are already going out of business, with the inevitable depressing influence on their localities. Local exhaustion of the forests is leaving great stretches of land in an unproductive condition, resulting in virtual impoverishment, if not depopulation, of very considerable areas.

DAMAGE FROM FOREST FIRES GREATEST IN MIDDLE WEST

Average Annual Loss in United States More Than $20,000,000

Need for More Efficient Fire-Prevention Measures Necessary to Stop Devastation of Nation's Timber Supply

Damage by forest fires in the eastern section of the country, and likewise in the Mississippi Valley, is far in excess of that in the West, great as is the devastation of timber in that region. This statement is based on averages recently compiled by the Forest Service, United States Department of Agriculture, from data covering the 3-year period ending in 1918, reports for fires in 1919 not yet being available.

The average annual loss for this period due to forest fires in the entire country was $20,727,917. The average of the areas burned annually was 13,969,331 acres. The region lying to the east and south of Ohio, Kentucky, and Tennessee included 47 per cent of the total area burned and sustained 32 per cent of the total damage. In the Mississippi Valley (exclusive of the State of Mississippi, which is included in the region indicated above), the damage was 61 per cent of the total, while the area burned was 46 per cent of the total devastated acreage. The heavy average damages, of course, reflect the unusually heavy losses in Minnesota in 1918, which alone aggregated $28,000,000. The damage caused in the Rocky Mountains and the region beyond was but 7 per cent of the total, and the burned area likewise was but 7 per cent of the total burned area.

These facts are cited to show the great need for more efficient fire-prevention measures, East as well as West. The reports also indicate that the greatest number of fires were started by farmers burning brush and by railroads. The other principal causes, in order of importance, were incendiarism, campers, and lightning. About one-fourth of the total number of fires were of unknown origin.

What Caused the Fires

The burning of brush in the process of clearing land for cultivation was responsible for an average of 5,173 fires in the three-year period of 14.8 per cent of the total. The extension of cultivation to new lands for war production was doubtless an important factor in this situation although even in normal times this class of fires is unusually common. More than half of the fires from this cause occurred in the eastern section of the country, one-fourth of the total, on the average, occurred in the Mississippi Valley, and but 12 per cent in the Rocky Mountains and the region beyond.

In the East, railroads also were responsible for a greater number of fires than they were in the West, the average number per year attributed to them being 5,063. The war, too, doubtless contributed to this result, due to congested traffic conditions along the Atlantic seaboard. Nearly three-fourths of such fires took place in the eastern section of the country; 16 per cent occurred in the Mississippi Valley, and but 12 per cent in the West.

Next to brush burning and the railroads as causes of fire, stands incendiarism. According to the Forest Service, 4,597 was the average number of malicious origin in the three-year period. More than half of these occurred in the eastern section and something more than one-fourth in the Mississippi Valley, being centralized in the southern portion of both these divisions. This result reflects the common practice of southern grazing interest of deliberately setting fire to the woods.

The average number of fires per year started by careless campers was 4,096. Here the West ranks relatively higher than in the case of some of the other causes, 31 per cent of these fires of camp origin having been reported in the West, while 46 per cent occurred in the East and 23 per cent in the Mississippi Valley.

The average number per year of fires started by lightning was 2,875, of which 69 per cent occurred in the West, 27 per cent in the East, and but 4 per cent in the Mississippi Valley. In addition to the causes mentioned lumbering operations started 6.4 per cent of the fires; miscellaneous causes, 6 per cent; and unknown causes, 24.9 per cent.

Valley Fires Were Big

While in most instances the number of fires from various causes is considerably higher for the eastern section of the country than for the other two main divisions, because of its considerably denser population, the total damage in the East was scarcely more than half that sustained by the Mississippi Valley. In other words, while the Mississippi Valley had fewer fires, they burned for the most part unhindered through lack of a protective organization, so that the burned area was practically as great as that burned over by the multitude of fires in the East, which because of prompt attention were extinguished for the most part before they gained any considerable headway.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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SERUM THAT SAVED LIFE MADE FROM SHEEP'S BLOOD

The serum that saved the life of Lena Delbane, after the other six members of her family had died from eating poisonous olives in New York, was made in the United States Department of Agriculture from the blood of a sheep that had been immunized against bacillus botulinus poisoning. The serum was rushed to New York by the Bureau of Animal Industry on request from the United States Public Health Service. Three members of the Delbane family were alive when the request was made, but one of these died before the serum reached New York and another was so nearly dead that treatment was unavailing. The little girl was the only one with sufficient vitality left to make possible a test of the efficacy of the serum.

The Department of Agriculture happened to have the life-saving serum because of the fact that the bacillus botulinus is suspected of causing what is known as forage poisoning of horses. In investigating that subject, the scientists of the Bureau of Animal Industry made extensive experiments with serums. It was discovered that there are two strains of the bacillus botulinus. They look alike and the poisons they create produce the same effect, but immunization against one does not afford immunization against the other. The two strains are commonly referred to around the bureau as "the olive strain" and "the cheese strain," or sometimes as "strain A" and "strain B."

The three recent instances of olive poisoning—one in Michigan, one in Ohio, and the third in Montana—were all caused by "the olive strain" or "strain A" of the bacillus botulinus. The veterinarians, therefore, were reasonably certain that the serum affording protection against the poison generated by "strain A" botulinus would be effective in the New York cases, and it proved to be so in the one case where it could be given a fair trial.

CIGARETTE OUTCLASSES CIGAR AS THE NATIONAL SMOKE

Cigar types of tobacco are produced in New England, New York, Pennsylvania, the Miami Valley in Ohio, Wisconsin, Georgia, and Florida. Of the entire tobacco crop of 1,389,000,000 pounds in 1919, the cigar types constituted about one-sixth, and the chewing, smoking, snuff, and export types most of the remainder, according to the Bureau of Crop Estimates, United States Department of Agriculture. The cigar types are heavy producers per acre, the average for 1919 being 1,265 pounds, while the other types had an average of 679 pounds.

Before 1919 the average farm price of the cigar types of tobacco was always above that of the other types, as a whole, but in that year the extraordinary European demand for tobacco other than the cigar classes and the immensely increased use of tobacco for cigarettes raised the average farm price of the composite chewing, smoking, snuff, and export types to 41.3 cents on December 1, or greatly above the price of 21.9 cents for cigar tobacco. Indeed, the latter class of tobacco had a lower price than in either 1918 or 1917, not because of increase of production, but because of weaker demand. The cigar has been overtaken and passed by the cigarette.

SMALL-SCALE EXPERIMENTS MADE WITH VARIOUS SILAGES

Preliminary silage experiments on a scale small enough to make numerous tests possible and yet large enough to permit of palatability tests have just been completed by the United States Department of Agriculture. The work was done by specialists of the office of Forage Crop Investigations, at Redfield, S. Dak., the past season. A hand chopper was bought for less than $20. The containers were motor-oil barrels that cost $1.50 apiece. These barrels were filled about September 1 and contained from 150 to 200 pounds of silage. After the silage was tramped in, the barrel heads were put back, the hoops tightened, and a coat of paint applied.

Experiments were made with alfalfa, sweet clover, sudan grass, corn, sorghum, soy beans, Russian thistle, wild sunflower, a mixture of half corn and half alfalfa, a mixture of one-third corn and two-thirds alfalfa and a mixture of half alfalfa and half sorghum. The barrels were opened November 20 and all the silage was found to be in excellent condition, except that of Russian thistle, which was black and watery. In palatability tests, cattle were used that had never before eaten silage. All of the silages were eaten readily except the Russian thistle, which was refused completely, and the wild sunflower, which was eaten sparingly. The sunflower silage, however, was put up when the plants were rather old and it is probable that the presence of resinous substances prevented the proper curing of the silage.

Similar experiments will be carried out next season on a much more extensive scale. The system is so inexpensive that an unlimited number of tests can be conducted. The specialists hope that many plants never yet given a trial are capable of furnishing satisfactory silage in regions where corn can not be grown successfully.

HIGHEST COUNTY ENROLLMENT IN BETTER-SIRES CAMPAIGN

In Merrimack County, N. H., 18 livestock owners enrolled in the better-sires campaign prior to January 1, 1920. This is the largest number in any one county, according to a Federal report covering the first three months of the Nationwide drive against inferior sires. Enrollment means that the persons have agreed to use nothing but pure-bred sires not only in one, but in all classes of animals raised. They have agreed also to follow approved methods of live-stock breeding. Norfolk County, Mass., and Huerfono County, Colo., are tied for second place with 10 enrollments each.

There is a wide range in the quantity and variety of live stock kept. One breeder listed pure-bred silver foxes and Great Dane dogs in addition to his regular stock.

SPRAYED POTATOES SHOW PROFIT

Several potato-spraying demonstrations have been conducted by farm-bureau members in Carbon County, Pa. One demonstration, in which the cost of spraying was $15.60 an acre, gave the following results: Sprayed, 252 bushels per acre; unsprayed, 182¾ bushels per acre, an increase per acre of 69¼ bushels. With potatoes worth $1.50 per bushel, the net profit was $88.25 per acre.

The by-products of the sugar-beet crop when properly handled and fed have a value equal to the entire cost of what is commonly termed "hand labor" in producing the crop of beets.

What To Do When Onion Sickness Occurs; Many Maladies Attack This Vegetable

Maybe it is because of its strong smell. Anyway there is some magnetic attraction which apparently draws disease of various kinds and conditions to the onion crop. Take, for instance, onion smut. It works overtime in trying to snuff out the young seedlings by forming brownish black, elongated blisters which finally split the leaves and expose the powdery black mass of spores within the interior of the blister. A specific fungus causes this onion ailment, the spores wintering in the ground and again attacking the young seedlings in the spring.

The onion is susceptible to the fungus only while in the young seedling stage. After the plants reach a height of 3 to 4 inches they become immune to further infection. Smut spreads slowly in the soil, but an infested area in a field will gradually become larger and more severely diseased each year onions are grown on such an area. The spores are spread on farm implements, the feet of men and animals, by surface water, and in dust carried by the air. Purchasers of onion sets should use caution that they do not contaminate the soil by planting smutted sets.

Control is accomplished in home gardens by changing the location of the onion bed to clean soil, or by planting sets instead of seed. In large commercial onion districts of northern States formaldehyde solution is applied in the furrow with the seed, as this disinfectant holds the fungus in check. One fluid ounce of 37 to 40 per cent formaldehyde solution is used with each gallon of water, this diluted solution being applied at the rate of 200 gallons per acre or 1 gallon to about 185 feet of row. Farmers' Bulletin 1060, recently issued by the United States Department of Agriculture, describes in detail the apparatus used in applying this fungous-destructive seed protector. As a rule, it costs about $5 an acre to insure the onion crop against smut losses in this manner. It is advised that the tops of diseased onions be burned after harvest in order to prevent the return of infected onion refuse to the soil. The spreading of waste from onion warehouses is a bad practice.

A Destructive Plant Disease

Onion mildew or blight is sometimes serious in the cooler and more humid onion districts. The disease commonly starts in the field in spots and spreads to the surrounding areas, its development being greatly aided by moist weather. It centralizes its attack on the leaves, which turn yellow, become covered with furry growth, and eventually collapse. The disease occurs wherever onions are grown extensively, although the control varies in different sections. A fungus causes the disease, the furry masses on the affected leaves being branches of the fungus, which bear abundant spores. Warm weather promotes spore germination and hence is favorable to the spread of the disease.

As the spores winter in the onion field, an efficient crop rotation is one commendable method of control, the supplementary growing of cabbages, potatoes, and sugar beets with onions being valuable. Good soil drainage also helps to reduce the blight, since it decreases the moisture in the air near the surface of the soil. Good air drainage of the field is also essential, so that excessive dew and fog may be avoided. Rosin fish-oil soap, as a sticker, makes the use of Bordeaux mixture effective in controlling onion mildew. The Bordeaux mixture consists of 4 pounds of copper sulphate, 4 pounds of quicklime, 3 pounds of rosin fish-oil soap, mixed with water to make a 50-gallon solution. Complete directions for making this spray material are furnished in the Department of Agriculture bulletin.

Onion leaf mold is a disease of minor importance except in Louisiana and California, where it occasionally causes large losses. It occurs in midseason and causes the tips of the leaves to die back. No satisfactory control has been perfected.

Strict attention to sanitary measures and careful sorting of diseased bulbs at harvest time are the chief means of controlling Fusarium rot, which reduces the roots to a mass of white moldy growth.

Texas Growers Fear Pink Root

Pink root is the most serious disease confronting the grower in the Bermuda-onion-growing region of southern Texas. It causes the roots to shrivel up, turn pink, and die, while the new roots sent forth are disabled in a short time. This disease is being investigated by the Texas agricultural experiment station.

Root-knot of onion is an eelworm disease which dwarfs the above-ground parts of the plants and reduces the size of the bulbs. The eelworm, a minute nematode, lives in the soil and causes galls on the onion roots. Live steam applied under considerable pressure will free the infested soil of eelworms. In large areas where steaming is not practicable, nematodes can be reduced by a proper system of crop rotation, as the avoidance of susceptible crops starves out the eelworms. However, to avoid root-knot it is never advisable to plant onions on land known to be eelworm infested.

Neck rot, another onion complaint, may be avoided by providing proper sanitation and protecting the crop from damp weather after harvest. Artificial curing by passing a current of heated air over the onions in shallow crates until the necks are thoroughly dry also reduces losses.

Soft rot is caused by a group of bacteria which also damage cabbage, carrots, celery, and many other vegetables. Crop rotation and sanitation should be employed to suppress it, and precautionary measures in harvesting, curing, and storing the crop should be followed religiously. All affected bulbs should be sorted out before storage or shipment.

General sanitary measures and protection from moisture after harvest are efficient in controlling onion black mold. The bulbs should be thoroughly dry before they are shipped, since moisture favors the rapid development of the disease in transit. Dealers in northern markets receiving infected lots to be held any considerable length of time should transfer them to cold storage to hold the disease in check.

Onion smudge, confined largely to the white varieties, results in a smudgy, unsightly appearance of the bulbs and an ultimate reduction in the market quality of the crop. As the disease is dependent largely on abundant moisture, special care is necessary in handling the white varieties. The crop should be harvested quickly, avoiding any exposure to rain if possible. Then it should be stacked in an open shed and allowed to cure thoroughly. The white sets should be placed in thin layers in shallow crates.

DATES FOR HEARINGS ON WOOL WAREHOUSE LICENSING

Wool growers, dealers, manufacturers, and other interested persons are invited by the Chief of the Bureau of Markets, United States Department of Agriculture, to attend hearings on the proposed rules and regulations for wool warehouses to be licensed under the United States warehouse act. Copies of tentative regulations, which will form the basis of discussion, are available. Persons not able to attend the hearings may send written communications to the Chief of the Bureau of Markets, Department of Agriculture, Washington, D. C.

The final hearing will be held in Washington in room 411 of the building at

1358 B Street SW., March 1, 1920, at 10 a. m.

Preliminary hearings will be held at 10.30 a. m. at the following places:

February 7, Elks' Home, Rawlins, Wyo.: February 9, House of Representatives room, State Capitol, Salt Lake City, Utah; February 13, room 1131, Merchants' Exchange, San Francisco, Calif.; February 16, Multnomah Hotel, Portland, Oreg.; February 19, Olive Hotel, Miles City, Mont.; February 23, Stock Yard Inn, Chicago, Ill.; February 25, Boston Wool Trade Association, Boston, Mass.; February 27, Chamber of Commerce, Philadelphia, Pa. Meetings have already been held as follows: February 2, Deshler Hotel, Columbus, Ohio; February 3, Planters Hotel, St. Louis, Mo.

Suggestions made at these hearings will be taken into consideration in adopting the final rules and regulations to which warehouses must conform in order to be licensed by the Federal Government. Uniformity of conditions under which the wool is stored, it is said, will make the warehouse receipts more widely valuable as collateral for loans, thus giving wool growers facilities for credit which approach those enjoyed by other business men.

ICE-HOUSE CAPACITY VARIES WITH MANNER OF STORAGE

A cubic foot of ice weighs about 57 pounds, so in storing ice it is customary to allow from 40 to 50 cubic feet per ton for the mass of ice, but the quantity that an ice house of a given size will hold depends upon the manner in which the ice is stored. Generally a cubic foot of an ice house will hold the quantities given below, according to United States Department of Agriculture specialists:

	Pounds.
Ice thrown in at random, about	30 to 35
Ice thrown in in irregular pieces and broken sufficient to pack closely	35 to 40
Ice piled loosely	40 to 45
Ice piled closely and with very slight crevices between	45 to 50

Unless the ice house has permanently insulated walls, at least 12 inches must be left between the ice and the wall of the building for insulation, and an equally large space for insulation must be allowed beneath and above the ice. From this it is possible to calculate readily the quantity of ice that any given house will hold. Thus, allowing 45 cubic feet per ton, an uninsulated ice house 18 by 12 by 10 feet high, allowing 1 foot around the ice for insulation, will hold about 38 tons, while the same-sized house if insulated will hold about 43 tons.

Loss by meltage is in proportion to the surface area exposed to the air or packing material; hence it is advisable to store ice in the form of a cube, or as nearly so as possible. However, a square ice house without a gable roof is not desirable because its capacity is not so great as that of a square house of equal cubical content up to the plate line and roofed with a gable. A gable roof allows of a greater height of the filling door, thus permitting the storage of a larger quantity of ice, and affords better ventilation and ease of handling. Table 2 gives the inside dimensions of insulated houses for various quantities of ice. For uninsulated houses the dimensions should each be increased 2 feet.

Farm Wages in 1919 Were Highest in the History of the United States

At no time have the wage rates of farm labor been as high in this country as they were in 1919, certainly as far back as 1866, when the first investigation of this subject was made by the Bureau of Crop Estimates, United States Department of Agriculture. Averages for the United States are in mind, and not local rates. For labor hired by the month with board, the average rate was $39.82, and among the geographic divisions the average was as low as $30.54 in the South Atlantic and as high as $62.96 in the Western, including the Mountain and Pacific States. Without board, the average for the United States was $56.29, and the lowest was $44.03 in the South Atlantic States and the highest $87.12 in the Western. Extras, such as firewood, milk, etc., are not included.

Average for United States $3.15 Per Day

Harvest wages per day with board reached the top figure of $4.48 in the North Central States west of the Mississippi River and the lowest figure of $2.28 in the South Atlantic, and the United States average was $3.15. Without board, the United States average of $3.83 was most exceeded by $5.33 in the former States, while the latter States had the lowest average, $2.82.

Statements in similar form for day wages for work outside of harvest with board make the United States average $2.45, that of the North Central States west of the Mississippi River $3.22, and of the South Atlantic States $1.85; the rates without board, in the same order, were $3.12, $4.03, and $2.39.

While the lowest farm wage rates are in the South Atlantic States and next to the lowest in the South Central States, it is interesting to note that the greatest percentage of gain in rates in 1919 over 1918 among all the groups of States was in the latter group, and that next to the greatest gain was in the former, except that next to the greatest increase in harvest day wages was in the North Central States west of the Mississippi River. The lowest percentages of gain in all classes of hiring are found in the North Atlantic States, a region in which the rates for all but one of the classes of hiring are above the averages for the United States.

Farming Operations Also Increase

In the farming operations of 1919 in this country, crops were produced that had a value at the farm that was 11.8 per cent above the value of the crops of 1918, and animal products 9.9 per cent above, but the gain in the rates of wages of farm labor from 1918 to 1919 were relatively greater than these. In hiring by the month, the gain was 14 per cent when with board and 15.3 per cent when without board; day wages in harvest gained 18.9 per cent, whether with or without board, and day wages for work other than in harvest gained 18.4 per cent when with board and 18.6 per cent when without board.

These figures indicate that the farm laborer is still regaining the ground that he lost, relatively, early in the rapid upward movement of prices of farm products after 1915. This wage recovery was evident in 1918 as well as in 1919, but full recovery has not yet been accomplished.

For some reason or reasons the connection between the wage rates and the boarding of the laborers by employers underwent a change from 1918 to 1919 that was the reverse of the change that occurred from 1913 to 1919. In 1919, compared with 1913, the last full prewar year, farm hired labor with board was relatively more in demand or less in supply than labor without board, but, compared with 1918, labor without board was relatively more in demand or less in supply. In these two classes of hirings, labor without board was somewhat at a premium in 1919 as a result of changes that took place since hirings of 1918.

SOURCE OF OUR NAVAL STORES

Aside from lumber, the southern pines, particularly the long-leaf pine, are the source of our naval stores, representing a value in excess of $20,000,000 a year. The position of the United States in regard to these important raw materials is at present a commanding one. Only one other country can be considered a rival, and that country — France — produces about one-fourth as much as the United States.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Club Work Profitable.

Agricultural club boys in Eldorado County, Calif., borrowed $592 in March, 1918, from local banks to start their pig club projects. In August, 1919, an inventory showed that these boys owned or had sold $5,826.25 worth of swine. Eight gilts, exhibited by the Eldorado boys at the State fair brought an average price of $56.50. They were from the first litter out of the original sows.

Owing to the high prices of pork last year, 63 per cent of the 1919 enrollment in the California argricultural clubs went into either the sow and litter or the pig feeding contests. Many club members in the State paid high prices with borrowed money for purebred animals, and in most cases have more than repaid the loans out of the first litters.

Occasionally the purebred pig clubs in California have found difficulty in securing adequate prices for the stock they raise. To eliminate this trouble they have resorted to the means used by other purebred breeders, and have organized auction sales. Two were held in the past year, one at Lemoore, Kings County, and one in Fresno County. At Lemoore 38 animals brought a total of $2,751, or an average of about $72 a head, which is about the market price for purebred animals in California. In Fresno County 29 head of purebred Poland-Chinas brought a total of $981.50, or an average price of $68.30.

Farming Outruns Dictionary.

A great many terms in common use in agricultural discussions have never found a place in the dictionaries. So widely used and important a term as "vitamin" has not yet found its way into the principal unabridged dictionaries. For the public, therefore, there exists no approved spelling, no approved pronunciation, and no approved definition of the name of a thing that is vital to all living things. There are scores of terms, indispensable in agricultural writing or speaking, that have not been recognized by the lexicographers, and there are quite as many new usages of established words. "Blood line," a term commonly used in discussions of breeding, is not in the dictionaries. Nobody knows whether it is one word, two words, or a hyphenated word. "Overrun," a term widely used to express the thing that is practically the determining factor of profits in creamery establishments, is unknown to the dictionaries. "Standardbred," "trap nest," and any number of other commonly used terms, understood well enough by agriculturists, remain undefined for the accurate information of the general public.

The United States Department of Agriculture, through the joint efforts of the Bureau of Animal Industry and the Division of Publications, has begun a movement to standardize the use of such terms, and about 30 of them are on the griddle now. Three points of view are taken—that of the field man who knows the common usage of the layman, that of the scientist who has the viewpoint of the specialist, and the point of view that looks merely to the use of good English. Each word is submitted to the various classes of persons interested, together with the proposed usage and the authority or lack of authority for it. From the suggestions received in reply, the finally approved usage will be determined.

The first agricultural term to be acted upon in the manner described was "corn belt." That was considered more appropriate than corn-belt or cornbelt.

Although the principal purpose is to establish approved usage for Department of Agriculture publications, lists of terms evolved will be furnished later to dictionary editors with the view of obtaining uniform national usage. The cooperation of agricultural experts and editors is invited.

Peacocks in Campaign.

The first peafowls have been entered in the "Better Sires—Better Stock" crusade of the agricultural colleges, the United States Department of Agriculture, and cooperating agencies. The entry comes from Butte County, S. Dak., and the owner is J. L. Jones. He is using purebred sires in breeding horses, cattle, swine, and poultry. Among his poultry he records a peacock and two peahens, also a liberal number of turkeys, geese, and ducks. The campaign already is giving valuable facts and figures regarding the classes of live stock most commonly kept together on farms.

New Turpentine Project.

The Forest Service of the United States Department of Agriculture has recently issued a permit to a Portland, Oreg., turpentine company to extract pitch from 160 acres of Douglas fir on the Umpqua National Forest. This company is pioneering in a new industry, which, if successful, will increase the value of Douglas fir and also materially add to the country's waning supply of turpentine. The plan is to bore into old and pitchy Douglas firs for the rosin stored in the cracks and seams of trees that have been wrenched by the wind. The product thus secured will be manufactured into turpentine and rosin. This permit is the first of the kind granted to a naval stores operator.

Do Not Retard Farm Census.

Farm owners who have left their farms to spend the winter in town or in traveling are delaying the census enumeration work to some extent, according to information furnished the United States Department of Agriculture by the Bureau of the Census. This is especially true where the man left in charge of the farm during the absence of the owner is not familiar enough with the facts to give the correct answers. Farmers who are already living away from their farms are urged to get in touch with the enumerator or the supervisor for the district, so that no time will be lost by the Government in locating them and securing the proper and accurate information concerning their farms. Every farmer who contemplates leaving his farm during January is urged to secure a census schedule from the enumerator or supervisor and answer the questions in advance. The filled-out schedule can be left with the man on the farm or mailed to the proper census official.

Ways to Better Live Stock.

From an analysis of enrollment records in the "Better Sires—Better Stock" campaign during the first three months, the United States Department of Agriculture presents figures showing that the use of purebred sires appears to lead automatically to ownership of well-bred female stock also.

Summing up the factors which will hasten live-stock improvement and bring many benefits, the department makes the following requests of live-stock owners:

Use purebred sires of good quality in all classes of live stock. Dispose of scrub, grade, and inferior purebred sires.

Keep breeding records. Many excellent animals of pure breeding have in the

past been forced to rank as grades or scrubs owing to lack of records.

Join an active live-stock association and attend fairs, exhibitions, and judging contests where well-bred animals of good type are shown.

Read good agricultural literature, including live-stock and farm papers. The Department of Agriculture and the various States will send helpful bulletins on request.

Cooperate with your county agent, your agricultural college, and other constructive forces in improving the quality of live stock in your community.

Better live stock aids the breeder both in direct returns and by giving a locality a favorable reputation. The sum total of all improvement, of course, advances the international standing of the United States with respect to its live stock and live-stock products.

Club Members as Stock Judges.

It is almost as important to be able to judge an animal accurately as it is to raise one successfully. If a person does not know what constitutes good points in an animal, he is obliged to rely on someone else's judgment in both buying and selling. That is one reason why boys and girls in the clubs supervised by the Department of Agriculture and the State agricultural colleges are being trained in stock judging. At the county, State, and interstate fairs, live stock judging contests are conducted and demonstrations given by club members to interest the public and improve the methods used in the production and care of live stock.

At the Missouri State fair boys' and girls' club teams judged both beef and dairy cattle. In putting on the demonstrations each member had his particular part to do. The captain of the team introduced one member, who gave the history and characteristics of an ideal beef animal and the same for one of dairy type. Another member compared dairy and beef cattle by using an animal exhibited at the fair to illustrate his points. The captain then scored a beef steer, using a large score card that could be read by everyone in the audience. Each point was discussed and the rating of the good and poor features of the animal were pointed out and scored.

At the Interstate Fair, at Sioux City, Iowa, the Nebraska live-stock judging team won first honors in competition with teams from North Dakota, South Dakota, Missouri, and Iowa.

Graded Eggs Bring Premium.

Eggs from the Pacific coast in large amounts were first shipped across the continent to the New York City market two years ago. Now they are bringing a premium of from 1 to 2 cents, according to market quotations.

That this is due to the strict grading practiced by the shippers of the Far West is the belief of men in the Bureau of Markets, United States Department of Agriculture. The reputation for careful grading which the westerners have attained in other products shipped east has spread to include eggs.

Meat Animals in Combinations.

The keeping of cattle and of swine appear to be almost inseparable operations. This fact is being brought out in the returns of the "Better Sires—Better Stock" crusade of the agricultural colleges, the United States Department of Agriculture, and cooperating agencies. This general practice has long been known, but much more definite information is being gathered, and the purpose is to extend it to such an extent as to determine the relationships among all meat animals.

If nearly every man who keeps cattle also keeps hogs, and if nearly every man who keeps hogs also keeps cattle, the inevitable conclusion is that the combination pays, especially when purebred sires are used. But it remains to be determined what are the most common and the best paying proportions. The same thing applies also to combinations of cattle and sheep, or swine and sheep, or cattle and sheep and swine. One benefit of the work will be that it will enable the man of small personal experience to avail himself of the wide experience of a great number of men in working out the combinations of meat animals that he will carry on his farm.

Winter Care for Breeding Ewes.

Flockmasters are urged to see that their breeding ewes are receiving the proper kind of attention at this time in order to produce the most profitable lambs. The ewes should be in good thrifty condition. It is not necessary to feed a large amount of grain to breeding ewes which are receiving good, clean, mixed clover and timothy hay, clover hay, or alfalfa. Where bright corn fodder is available in conjunction with some leguminous feed very good results can be obtained from feeding what the ewes will clean up nicely in the middle of the day at one feed. Where the breeding flock is a little thin in condition a grain mixture of equal parts of corn, oats, and bran by weight, fed at the rate of one-fourth to one-half pound per head daily, will be found most satisfactory and will increase the profits, as the ewes will be better mothers and stronger milkers when the lambs come.

It is not necessary to provide close quarters for the breeding flock, according to United States Department of Agriculture specialists. They should be kept in a clean, dry place, which is dry overhead and underfoot and free from drafts. Plenty of exercise is very important, and the breeding ewes should be out every clear day. Where forages are fed and winter pastures are not available it will be found beneficial to spread the forage over the ground some distance from the shed, and as the ewes feed back and forth over it they will thus gain plenty of exercise.

The flock which is in good thrifty condition, properly housed and properly fed, and receives adequate exercise, will lamb out much better and will cause the shepherd far less difficulty.

DEPLETION OF OUR FOREST SUPPLIES

The species of timber which form the bulk of our export trade, except Douglas fir, are those of which the supplies are most depleted. Thus, southern yellow pine forms half of our entire export trade, and the available supply is only 222 billion feet. At the present annual cut of saw-log size timber of nearly 17 billion board feet there remains only about 14 years' cut of the original supplies.

That these figures are not a mere theoretical calculation is proved by an official statement recently issued by the Southern Pine Association regarding the life of the southern pine industry. The Southern Pine Association estimates that 81.6 per cent of the mills will cut out their supplies in 5 years, 95.3 per cent in 10 years, and 99 per cent in 15 years.

CHICKENS MADE TO PAY

Mrs. Mary Pettieger, of Major County, Okla., is a successful poultry woman and also local poultry demonstrator. She set 2,500 eggs last year and sold 1,015 baby chicks. She also disposed of 200 pullets for breeding purposes, and during the year sold 2,313 dozen eggs on the market and 700 dozen eggs for hatching. Some of the feed for the flock was raised by their owner, but the rest was bought. Besides buying a $175 incubator, which holds 600 eggs, and a $23 brooder, Mrs. Pettieger received a net return of $1,043.80 from her flock in the year ending in November.

Gathering beet tops from the field and siloing them without undue delay allows fall plowing to be done before freezing weather interferes. Fall plowing is important for the beet crop.

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Make Producers of the "Useless Members," Says Secretary Meredith

Lower Living Costs Means Job for All Elements in America, He Says

Business Men Called Upon to Shift Employees Who Impede Distribution of What Farmer Produces

In answering questions of newspaper men regarding means for reducing the high cost of living, Edwin T. Meredith, the newly installed Secretary of Agriculture, said that useless employees, no matter in what line they may be engaged, must be released from nonproductive work and given an opportunity to become producers upon the farm or in the factory. If this is done and if jobbers and retailers recognize the harm that must ultimately come from profiteering on the farmer and content themselves with a reasonable profit, he said, the question of the high cost of living will largely solve itself to the permanent good of all. But unless the whole country—all business and all labor—does recognize this as a common problem and do the things necessary to solve it, he continued, "less and less will there be of farm produce to divide among the whole people and higher and higher will go the price of that which is produced."

"I am surprised," said Mr. Meredith, "that I should have received the number of messages I have, particularly from daily papers, asking what plans I, as Secretary of Agriculture, have to reduce the high cost of living, indicating that the general feeling is that this is essentially an agricultural problem. It is, of course, related to agriculture, but no more than to many other lines of activity, and I am tempted to believe that the solution of the problem lies more in the hands of those interested in distribution and nonproductive enterprises than in the hands of the farmers of the country.

"The farmers must certainly produce. They have produced and will produce—that is their business. They are on a piece-measure basis, so given satisfactory conditions they will do their part, as the farmers of America have in every situation or crisis that has faced the country. But this question of 'satisfactory conditions' is a big one. It is not a satisfactory condition for the farmer to receive reduced prices for his pork, wheat, hides, while the prices of his machinery, lumber, and shoes are raised. It does not conduce to a pleasant frame

(*Continued on page 7.*)

LIVING COSTS NOT CHARGEABLE TO FARMERS ALONE

The high cost of living is, of course, related to agriculture, but no more than to many other lines of activity.

Useless employees must be given an opportunity to become producers upon the farm or in the factory.

I am tempted to believe that the solution of the problem lies more in the hands of those interested in distribution and non-productive enterprises than in the hands of the farmers of the country.

It is not a satisfactory condition for the farmer to receive reduced prices for his pork, wheat, hides, while the prices of his machinery, lumber, and shoes are raised.

The farmer asks that the laborers in the mines, the factory, and the mills, who are also real producers along with the farmers, make an effort comparable to his to see there is just as little labor expense as possible in each article turned out by their hands, thereby helping the farmers of America, who in turn will help the laborer.

Attention must be given by public-spirited citizens to the methods which tend to quicken and cheapen distribution of farm products, such as better terminal facilities, easier transfers, inland water transportation, back-hauling, and round-about routes eliminated.

Every person, no matter in what walk of life he may be engaged, should have a sympathetic, helpful interest in agriculture.—Secretary Meredith.

NEW SECRETARY IDENTIFIED WITH FARMING ALL HIS LIFE

Edwin T. Meredith Begins Duties as Head of Department of Agriculture

David F. Houston, Who Becomes Secretary of the Treasury, Guided Nation's Agriculture to Broad Development in Seven Years of Leadership

At noon, February 2, Edwin T. Meredith became Secretary of Agriculture, succeeding David F. Houston who, on the same day, became Secretary of the Treasury. Mr. Houston had been Secretary of Agriculture since March 5, 1913.

Secretary Meredith has been identified with the farm, in one way or another, all his life. He was born and brought up on a farm. Within a short time after he left college, he began the publication of an agricultural paper and has been engaged continuously since in that kind of work. He was born at Avoca, Iowa, and was educated at Highland Park College, Des Moines.

In 1917 he was appointed by the Secretary of the Treasury a member of the Board of Excess Profits Advisers. He has served for some years past as a director of the Chicago Federal Reserve Bank. He is president of the Associated Advertising Clubs of the World.

During the time that Mr. Houston was Secretary of Agriculture many forward steps were taken in agricultural organization. The work of the department was reorganized to secure a more effective grouping of its activities and to make all phases of its work more helpful to the

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farmer. The Bureau of Markets was created. The Office of Farm Management was reorganized and its work broadened. Standards for staple products were provided for under the Cotton Futures and Grain Standards acts. The department was given authority to license bonded warehouses that handle certain agricultural products.

The agricultural extension machinery, including the system of farm demonstration agents and home demonstration agents, was strikingly developed. The Federal aid road act was passed. Its administration has resulted in the planning of road systems throughout the country, and much has already been accomplished in their construction. The Federal reserve act, authorizing national banks to lend money on farm mortgages and recognizing the peculiar needs of the farmer by giving his paper a maturity period of six months, was put in operation. It was followed by the Federal farm-loan act, creating a banking system that reaches intimately into the rural districts and is operated on terms to suit the needs of farm owners. War operations were aided in every bureau of the department. Recognition was given farm women and the farm home as demanding the same conveniences and advantages for a prosperous and contented life as are found in urban communities.

WOOL CONSUMPTION REACHES HIGH MARK IN DECEMBER

A total of 64,000,000 pounds of wool, grease equivalent, was used by manufacturers in December, 1919, or 26,000,000 pounds more than in December, 1918, according to the Bureau of Markets' monthly report just issued by the Department of Agriculture.

The continued demand for fabrics made from the finer grades of wool is reflected by the percentages given in the report. Of the total wool consumed in December, 34 per cent was fine, 18 per cent one-half blood, 17 per cent three-eighths blood, 16 per cent one-quarter blood, 3 per cent low, and 11 per cent carpet wool.

Massachusetts continued to hold the lead in the amount consumed with 23,420,247 pounds of all grades, classes, and conditions, followed by Pennsylvania with 8,804,337 pounds; Rhode Island, 6,548,116; New Jersey, 5,012,965; and New York, 4,082,080. Connecticut, New Hampshire, Ohio, and Maine used between 1,000,000 and 2,000,000 pounds, while in the Pacific coast States 363,078 pounds were used.

The total amount consumed, according to condition, were grease, 46,165,984 pounds; scoured, 7,681,642 pounds; and pulled, 1,718,627 pounds.

HOLD INDIVIDUALS RESPONSIBLE FOR DEVASTATION OF FORESTS

States Should Assist Owners Through Taxation Methods That Will Encourage Forestry

To Prevent Timber Shortage Government Must Greatly Enlarge Its Forests and States Should Acquire Extensive Areas

At the second Southern Forestry Congress, which opened at New Orleans January 28, Col. Henry S. Graves, Chief of the United States Forest Service, urged the importance for the Nation of a balanced and comprehensive forest program as the only way to avert an impending timber shortage and increasingly burdensome lumber prices.

"When the old timber begins to fail," he said, "and the large mills to close down, production falls off with great rapidity. Fully 85 per cent of the lumber in the general market still comes from original or old-growth forests. Through the approaching exhaustion of all the large centers of old-growth timber in the East we are having to go to the Pacific slope for material.

Forest Bankruptcy Ahead

"By destroying the second-growth timber and young growth we have prevented a normal renewal of the forest. We are concerned with the cold and ugly facts of broken and depleted forests, unproductive and actually devastated cut-over lands, a great deficiency of middle-aged second growth, and a net loss each year of our resources that is leading direct to forest bankruptcy.

"When our original forests are exhausted we find we have also exhausted a large part of the immature stands that would constitute our second cuttings. We shall face in consequence a great deficiency of timber in the immediate future.

"There are hundreds of thousands of acres of immature timber in the South that represent a splendid opportunity for profits if it is handled right. Yet many of these stands are being fast destroyed. Its loss will be felt not only by the producing lumber industry, but by every community and purchaser of timber in the South. If taken advantage of before it is too late, this second-growth and small timber will contribute to the upbuilding of the South in a measure difficult for most people to realize.

"In many cases it will also return very substantial profits to the owner. Often an owner who has not realized that young timber represented any particular value has found himself in possession of stumpage worth not less than $50 an acre for timber 40 to 50 years old. In the North young pine is often worth $250 to $300 an acre.

"Our forest deficit is increasing every year. No less than 29 States import more lumber than is cut from their own forests, and every important exporting State is cutting timber faster than it grows. Of saw timber the production by growth for the entire country is believed to be less than one-third of what is consumed. The public is vitally interested in the forest problem, and must assume a responsibility hitherto unrecognized for working it out. A responsibility rests also on private owners.

"I urge recognition of individual responsibility on the part of the private owner to so handle his land that it will not be devastated. I urge at the same time the adoption by the public of measures of assistance and cooperation which will make the application of this principle feasible in practice.

"A balanced program for the Nation must include both public and private forests. The public owns to-day about one-quarter of the forest land of the country. Ultimately from 40 to 50 per cent of our forests should be in the hands of the public. The Government should greatly enlarge its forests, and the States also should acquire extensive areas.

State Organizations Needed

"Beyond this, our proposed policy looks to the establishment of effective State forestry organizations and recognition in the law of personal responsibility of owners to prevent forest devastation, provision for a State-wide system of fire protection, authority to the State organization to take action necessary to prevent destructive processes that devastate the lands, and adequate appropriations to make State laws effective.

"On the other hand, there should be liberal assistance to owners by the State, through methods of taxation which will encourage rather than discourage forestry, advice and assistance in the development and use of methods of fire protection and of cuttings that will be followed by natural reproduction, and assistance in patrol and other protective measures against fire. Ordinarily in a cooperative system of fire protection there would be a sharing of cost on the basis of about half to the public and half to the owners.

"Our policy places on the State direct responsibility for the public's immediate participation in the private-forest problem. The problem of forestry, however, is in many aspects a national one, and the Federal Government should have a definite part in working it out. The function of the Federal Government should be to stimulate State action, to assist in securing concurrent legislation among the different States, to maintain standards of forest practice, and to assist the States directly in various important ways."

FARMERS NOT PROFITEERING SAYS DEPARTMENT STATEMENT

Facts in Iowa Situation Cited to Correct Misstatements

Rise in Land Values the Result and Not the Cause of Rise in Food Prices—Speculators at Fault

A metropolitan newspaper recently printed on its front page an article signed by one of its staff correspondents, devoted to what purports to be an exposure of profiteering by farmers in Iowa. The article is full of inaccurate statements and misinterpretations of facts, say farm management specialists of the United States Department of Agriculture. These inaccurate statements and misinterpretations are not peculiar to the particular newspaper in question. They have been made or insinuated by a considerable number of newspapers and other publications. But the staff correspondent of this particular newspaper very accommodatingly chose, as the scene of his story, the one place in the United States where his statements could be most definitely disproved by the Department of Agriculture. The Division of Land Economics, Office of Farm Management, has just completed a study of the recent increase in land values in Iowa and is in position to indicate the conditions that actually exist in that State.

Here is a typical paragraph from the newspaper article:

"Land values all over this agricultural region have been inflated to a preposterous extent. The big boom started in Iowa last summer and has been booming ever since. Last year there was an unprecedented turn-over in Iowa farm lands and values were artificially increased by speculators to such an extent that land formerly selling at $30 an acre found willing purchasers at $400, $500, up to $800 an acre."

"Formerly" Was 30 Years Ago

The most interesting, and apparently the most agile, word in that paragraph is "formerly." Land was "formerly selling at $30 an acre" in Iowa. But "formerly" was 30 years ago. Not since about 1890 have farm land values in that State ranged anywhere around that figure. And these lands are not now selling "at $400, $500, and up to $800 an acre," as the correspondent says. The average selling price of Iowa farm land is not higher than $250 to $275 an acre. Out of 1,500 instances of actual sales on which the Department of Agriculture gathered information, less than a dozen represent prices of $500 and less than 5 per cent represent as much as $400 an acre.

The impression is created all the way through the article that the high prices of food are caused by the high price of land. The fact is, however, that the prices of foods rose and the rise in land values followed. The further fact is that if the Government were to take from the Iowa farmers by taxation nearly all of the net earnings of farm lands, as single taxers advocate, prices of farm products would still be as high as they are now, unless lowered by some other cause. Prices of food products have moved up in approximately the same proportion as general prices and in response to the same world-wide causes—war scarcities and currency inflation. If prices of farm products were to any degree lower than they are, they would be entirely out of line with the prices of other products.

How Land Values Are Based

Every economist knows that farm-land values are based on the earning power of land as manifested, largely, by its rent, and that the earning power and rent are the result of prices of products in relation to the expense of production. During the war prices of food products rose rapidly, and expenses of production, for a time, did not rise with the same rapidity. The result was that farmers made somewhat larger net earnings than formerly and, consequently, found it possible to pay more for land than before.

Here are other statements from the article:

"The farmers in this region are richer to-day than they have ever been in their lives, and this means that nowhere on earth before has the man who tills the soil profited as these folk are profiting.

"To-day it is the East which is paying tribute to the money barons of the western farms.

"Moreover, unless the East keeps on being held up by the prairie speculators who have driven the cost of farm lands up to these absurd figures, and continues to pay interest on the watered stock or fictitious values now represented in these farms, in the form of abnormal and outrageous prices for wheat and corn and meat, the western bubble will break.

"So long as the consumers stand for being robbed, existing values can be maintained. When the consumers revolt and refuse to pay, the bubble will be pricked, and when the explosion comes, great will be the casualty list among those arrogant agricultural gentleman who now levy tribute upon the whole world. High prices of land must be maintained or else the bubble of fictitious values will burst."

"Riches," "tribute," "robbery," and like words are short enough to serve and ugly enough for anything, but they have the disadvantage of being rather too indefinite. Fortunately the facts are available. One of the studies made by the Department of Agriculture included a group of 324 farms in the richest portions of Iowa. The average net income of these farms in 1918, with no allowance whatever for interest on the investment in land and equipment, was $3,480. If 5 per cent be allowed for interest on the investment at the value of the land before the recent "boom," there is left, on the average, only $1,124 to pay for the labor of the farmer and for the risk to the business. On the basis of average values of land in August, 1919, there would be left an average of only $151 to pay the interest on the value of the land and equipment—the interest, as the correspondent says, "on the watered stock or fictituous values now represented in these farms in the form of abnormal and outrageous prices for wheat and corn and meat." After all, $151 does seem rather "abnormal and outrageous."

City People Get Two-Thirds of Increase

"Wildcat speculators" these Iowa farmers are called. But the facts show that nearly one-half of the people engaged in buying and selling farm lands in Iowa during the recent "boom" were city people, and this one-half who lived in the cities got about two-thirds of the money represented by the increase of sale value in farm lands during 1919.

In the light of these facts and of the almost universal prevalence of what might be called profiteering, the Department of Agriculture thinks it is unfortunate to single out as a profiteer the farmer—the man who sells his goods in an open market characterized by intense competition and free, so far as the farmer himself is concerned, from any element of monopoly or price control.

There can be no question, the department believes, that the recent increase in the price of Iowa farm lands is unfortunate, even in relation to farm earnings under the favorable conditions of production and prices in 1918, and that it is doubly unfortunate if the world faces the period predicted by many economics prophets. The land economics specialists of the department say, however, that the increase was an inevitable result of the present industrial system and that the farmers were no more to blame for it than any other class of people.

OUTLAWS ALL SCRUB SIRES

In Knox County, Tenn., the county council of agriculture is planning a better live-stock campaign and is making arrangements for the total elimination of all scrub sires in the county.

OUTLINES "SAFE FARMING" FOR THE SOUTH IN 1920

Dr. Knapp, Originator of the Term, Again Defines It

Make Every Farm Provide for Own Needs, Then Plant All Cotton Labor Can Handle

What is "safe farming" in the South? Dr. Bradford Knapp, the man who originated the term and has used it constantly for years, again defines it. He also tells its special meaning for 1920.

"By 'safe farming,'" he says, "is meant a system which maintains soil fertility, produces the food and feed for the people and the live stock in sufficient quantities to insure a comfortable surplus, and produces cotton as a strictly cash crop." It means, he continues, all that diversification means—a well regulated and profitable rotation of crops, conservation of the soil, improvement of seed and live stock, use of the most improved machinery and labor-saving devices to lighten the labor upon the farm, and especially the use of every American ingenuity to increase the production per man.

Is "safe farming" as thus defined needed in the South in 1920?

There are probably those who think not. Cotton is so high—so much higher than it ever was before. The supply is apparently so short—the cotton mills of the world so greatly in need of cotton. Is it not a time—the once in a lifetime—when the farmer can turn his whole energy to cotton and "make a killing"?

Safe Farming in 1920

Without specifically asking that question, Dr. Knapp answers it. And remember that he speaks with authority. He has grown up from boyhood with the farm-demonstration movement in the South. His father, Dr. Seaman A. Knapp, was the originator of the idea, and in the United States Department of Agriculture was placed in charge of the work of putting it into general application. When he died Dr. Bradford Knapp succeeded him, and under his supervision the system of cooperative extension work in agriculture and home economics has been built up in the South. He knows agricultural conditions the South over as few other men have ever known them. For a number of years past he has written for the farmers of the South an annual bulletin, in the light of that year's condition, on "safe farming." The one just published is his valedictory—the last safe-farming circular he will write as chief of the office of extension work in the South, United States Department of Agriculture. He left the department, January 15, to become dean of the college of agriculture and director of the experiment station, University of Arkansas.

And his final word to the farmers of the South is that the plan followed for the past few years is still good. The only safe plan for farmers, merchants, and bankers is to insist upon a safe-farming program. If the southern farmer is in a better financial condition to-day than he has been for some years past, says Dr. Knapp, it is due to a better-balanced husbandry and the production of more food and feed crops and live stock, as well as to the high price of cotton and other cash crops.

Cotton Actually Not High

Cotton, Dr. Knapp says, is not actually very high. It is high as compared with prices in former years, not as compared with current prices of other commodities. Then he quotes these figures:

"From July, 1913, to September, 1919, according to the Bureau of Labor Statistics of the United States Department of Labor, the wholesale price of cotton increased 143 per cent, cotton yarn 167 per cent, brown sheeting 206.9 per cent, bleached muslin 258.5 per cent, wool 158.6 per cent, bacon 115 per cent, hams 109 per cent, lard 146 per cent, salt pork 123 per cent, eggs 102 per cent, milk 114 per cent, corn 148.5 per cent, corn meal 103.3 per cent, wheat flour 153.5 per cent, rice 149 per cent, white potatoes 155 per cent, sugar 104 per cent, men's welt shoes 149 per cent, and women's welt shoes 210.3 per cent. Before the farmer decides that the high price of cotton will warrant his planting the entire acreage to that crop, to the neglect of all else, he had better make a pretty thorough examination of the retail prices of the necessities of life at the place where he must purchase them during the next year if he fails to produce them on his own farm.

"If we have learned anything, surely we have learned that a large acreage in a good year brings a heavy crop, and generally results in a lower price; and if we know anything at all, we surely know that the present situation is due to the wastage of war and to four successive short crops. The country never experienced such a condition in its history. If the acreage in cotton is increased, it must be done at the sacrifice of food and feed crops, or with increased labor. The experiences of 1919 ought to teach southern cotton farmers that they can not handle, with their present supply of labor, an increased acreage in cotton; the labor is not there."

1920 Program Outlined

Dr. Knapp then outlines what would be, generally speaking, a safe planting program for 1920. The first item is a good home garden for every farm family and every town and village family. The next item is that the production of corn on southern farms should be maintained and the acreage increased on all farms and in all sections which do not now produce a sufficient quantity for home use, except that in certain sections where corn does not always thrive grain sorghums should be substituted. The importance of small grains is pointed out, but, as they are mostly seeded in the fall, they are not included in the planting program. Enough hay and forage crops should be produced to supply amply the live stock on the farms of the South for one year, with an excess for the sake of safety and for city and town consumption. The South should maintain its production of meat and increase its production of eggs and milk.

"There is no thought," he says, "that cotton acreage ought to be reduced, but only that the lure of price should not blind our eyes to the necessity of food and feed. The purpose now is mainly not to reduce the acreage in food and feed crops. If we provide for the necessities of life and a well-balanced husbandry, the production of cotton can be sustained in a good season and the prosperity of the South assured."

These are some of the "high points" in Dr. Knapp's discussion of the agricultural situation in the South for 1920. The entire discussion fills a circular of 18 pages. The other great cash crops of the South—tobacco, sugar cane, and rice—are discussed. Much illustrative material is used to show that the farmer does not make more money from an acre of cotton than from an acre of corn or wheat—to show that, in the last analysis, the prosperity of a farm or a section depends upon the self-sufficiency of that farm or section. The title is "Safe Farming in the Southern States in 1920." It is issued as Department Circular 85, and copies may be had free on application to the Division of Publications, United States Department of Agriculture.

It is safe to conclude that 1 ton of good beet-top silage is equal to half a ton of alfalfa hay when fed as a mixed feed. Many feeders think that the silage has a value almost equal to good hay, ton for ton.

COMMUNITY CLUBHOUSES GROWING IN POPULARITY

Rural and Village Life Experiencing New Era, Study Shows

Extent of Movement, Character of Houses, Uses of These Centers, How Financed and Operated Studied by Experts

American rural and village life is experiencing a new era of neighborliness. It began a score of years ago, but received its greatest impetus during and since the war. Well-housed rural clubs—something almost unheard of a few years ago—are springing up all over the country. Because they mean so much to their neighborhoods, and because this neighborhood movement contains so much of promise for the 50,000,000 Americans who live in the country or in villages of less than 2,500, the United States Department of Agriculture has sent representatives to learn first-hand the history of nearly 300 of these clubhouses. The results of this investigation have been recently published in a bulletin, "Rural Community Buildings in the United States," which can be had at 10 cents a copy by addressing a request to the Superintendent of Documents, Government Printing Office, Washington, D. C.

This publication tells the extent of the rural club movement, the character of the clubhouses, the uses to which they are put, how their erection was financed, and how they are managed. In addition, details are given regarding eight different clubs, representative of as many different kinds of communities. How each solved its particular building problems is explained.

The majority of the structures visited were erected by popular subscription or by the sale of stock in a community organization. In some cases the projects were financed by local manufacturing concerns. Other buildings were the gifts of public-spirited individuals. A few were erected by public funds raised through taxation or the sale of bonds. In all cases the structures are the centers of a great variety of wholesome activities such as communities without central meeting places can not enjoy. One evening a building may be used for a basketball game, the next night for a neighborhood dance, later in the week for a political gathering, and on Sunday for union church services or union Sunday school. Any rural or semirural district interested in erecting a clubhouse—whether it is to cost $2,000 or $50,000—is expected to find helpful suggestions in this publication.

Many Amusements Provided

Many of the simpler structures, located in the open country, contain an auditorium with movable seats which permit it to be transformed into a dining room, an athletic room, or a dance hall. Usually, also, there is a stage and a well-equipped kitchen. These features make possible banquets and entertainments which mean much in the life of rural communities. In the club houses in smaller towns, in addition to the rooms mentioned, there are often a library, a reading room, a women's rest room, and a meeting place for various organizations.

The club houses in the county seats and larger towns are more pretentious, some having special banquet rooms, gymnasiums, swimming pools, billiard rooms, and offices for the county agent and for local commercial club secretaries. The following is a partial list of the varied uses to which these buildings are put: Lectures, night-school classes, home talent entertainments, dances, banquets, socials, political meetings, elections, indoor athletic games, welfare work, boys' and girls' club work, domestic science classes and demonstrations, agricultural society meetings, farmers' institutes, and cooperative purchasing and marketing activities.

How Buildings Are Managed

The persons owning stock in a community building generally constitute themselves a community building association and frequently take out articles of incorporation, giving them power to buy land, borrow money, and erect and control the club building. Nonstockholders using the structure are associated with them as social members. Individuals in both groups pay dues.

The stockholders, and in some instances the associate or social members, elect a board of trustees of from three to nine members who manage the building. This same body, or the board, elects the usual officers, such as president, vice president, secretary, and treasurer. Various committees are either appointed or elected. The details of management are often delegated to a house secretary, a physical director, or a caretaker. In a few instances, where buildings have been presented by an individual or an industrial concern, control is placed in a select board nominated by the donor and possessing power to appoint its successors. Township and city buildings are managed by the usual officials.

In the case of simpler buildings, maintenance expenses range in general from 5 to 10 per cent of the initial cost of the plant, the expenditures being chiefly for light and heat, while in the case of those involving larger maintenance costs there are added water rent, telephone, and salaries for a secretary, physical director, caretaker, or librarian. Funds for maintenance are secured through one or several of the following: Dues, rental fees, assessments, receipts from entertainments, from dances, from moving pictures, from pool and billiards, and, in the case of publicly constructed buildings, from the public treasury.

STOCKS OF HIDES INCREASE

Increased stocks of hides and skins on December 31, 1919, compared with the same date in 1918, are shown for the principal classes, with the exceptions of sheep and hog skins, by the monthly report of the Bureau of Markets, United States Department of Agriculture.

Increases, in percentages, were: Cattle hides, 11.4; calves, 31.9; kipskins, 70.9; horse hides, 135.6; horse fronts (whole), 1,353.8; horse butts, 92.1; kangaroo or wallaby, 196.6; goat, 126.9; kid, 116.3; cabretta, 126.5; and buffalo, 801.1. Decreases included: Horse shanks, 39.5 per cent; deer and elk, 29.1; sheep and lamb, 35.4; pig and hog skins (pieces), 40.7; and strips, 17.5. With a few exceptions the December, 1919, figures also show increases over those for November 29, 1919.

Total stocks on December 31, 1919, included: Domestic and foreign cattle hides, 7,206,511, classified as follows: Packer green salted, 3,389,022; country green salted, 1,062,035; dry and dry salted, 95,312; foreign, 2,660,142. Totals for calfskins were 2,059,794; for kips, 1,107,891; goat, 15,981,468; sheep and lamb, 9,138,679; and cabretta, 2,092,029.

STORE FOOD AT HOME

Farm buildings usually offer ample space for the storage of food products raised on the farm. The cellar of the house should hold a winter's supply of potatoes, beets, carrots, onions, and canned fruits and vegetables, as well as such articles as a barrel of salt pork, keg of kraut, and jar of eggs in water glass, says the United States Department of Agriculture. The thrifty farmer faces the winter season with a well-stocked cellar and with a store of dried fruits and vegetables and possibly some jars of apple butter in his attic.

Specially constructed root cellars or "caves" may be found on some farms. Potatoes and other vegetables are sometimes carried over the winter in earth pits or "tumps." The barn may also serve as a storage place for vegetables.

ELK HERDS IN WYOMING NOT IN DANGER OF STARVATION

Government, State, and Stockmen Cooperating to Save Them

Severe Summer Drought and Early Winter Cause Forage Shortage on Western Range

Recent statements that the elk herds are now starving in the Jackson Hole section of Wyoming are not in accordance with the facts, and are resented by the residents of that section, who offer to cooperate with the State and Federal Government in any way requested to help carry the elk through the winter.

About 8,000 elk came to the elk refuge in Jackson Hole to be fed in December, says the United States Department of Agriculture, but conditions have improved since then, so that on January 15 only about one-half that number remained about the feeding grounds, the others having gone back to the hills.

Drought Reduced Forage

The severe drought throughout Wyoming and Montana during the summer of 1919 so reduced the growth of forage on the range and the production of hay on the ranches that the outlook for the great elk herds in and about the Yellowstone Park and the live stock in that region was serious for the coming winter. The situation affecting the elk became still more critical when severe snowstorms and low temperature began the last of October, nearly two months in advance of the usual time. It was evident that the 850 tons of hay available for feeding the elk on the winter elk refuge in Jackson Hole, and the small supply in the possession of the State game commission at that point, would be wholly inadequate to meet the situation and save the appalling loss, which might reach as high as 8,000 or 10,000 animals. To meet this emergency the State game warden of Wyoming accumulated about 500 tons of hay, and the Secretary of Agriculture authorized the Biological Survey to use part of its general appropriation to meet the emergency by purchasing 573 tons of hay in addition to the 850 tons which it had on hand. There is now available for use in the Jackson Hole section nearly 2,000 tons of hay, which Reservation Warden Nowlin, of the Biological Survey, in charge of the winter elk refuge, considers will be sufficient to carry most of the elk of that section through the winter.

As still further assurance, the people of the Jackson Hole section have informed a representative of the Biological Survey that should more hay be required later in the season they will see that it is provided. This action on the part of the stockmen is a generous one, in view of the great need of all the hay available for the use of live stock. In fact, large numbers of live stock have already been removed from that region in order to forestall heavy losses from lack of feed.

Northern Herd Threatened

At the beginning of winter the critical situation of the southern elk herd was duplicated for the northern elk herd, which was forced out of the Yellowstone National Park by the same storm which drove down the southern animals in October. The National Park Service promptly made an emergency purchase of nearly enough hay to carry these animals through the winter and is now engaged in securing the additional amount needed. It is thus apparent that through the prompt action of the Government bureaus and the State game commission of Wyoming, with the cooperation of the people in the Jackson Hole section, the appalling losses of elk from starving, which appeared imminent early in the season, will be prevented.

MARY'S LAMB IN SCHOOL

Times have changed. The sequel of the incident, Mary had a little lamb, which was turned out of school, etc., is the desire of a Wyoming school-teacher to display in the schoolhouse framed pictures of well-bred farm animals. In a request to the United States Department of Agriculture a teacher in Fremont County Wyo., has asked for—and will receive at the cost of the prints—approved photographs of the different breeds and types of horses, cattle, hogs, sheep, and poultry.

The display of such pictures on schoolroom walls will do much, it is believed, to encourage the keeping and breeding of well-bred stock in the locality.

INCREASE IN RECEIPTS FROM NATIONAL FORESTS

Receipts from the national forests in the fiscal year 1919 were greater by $783,484.79 than in the previous year. This is the largest increase ever made in a single year. The receipts totaled $4,358,414.86.

To this total the grazing business contributed $2,609,169.85, the timber business $1,540,099.96, special uses (i. e., the occupancy of lands for miscellaneous purposes), $136,822.99, and use for water-power development, $72,322.06. The receipts from grazing exceeded those of 1918 by $883,347.91, while the receipts from timber declined $93,549.46. Special uses showed a gain of $15,616.05, and water power a falling off of $21,654.29.

The falling off in the receipts from timber was not due to any material reduction in the current timber sale business, but chiefly because in 1918 settlement was secured under a court judgment of a claim against one of the transcontinental railroad companies amounting, with interest, to $89,264.

The increase in the receipts from grazing was due to the fact that last year the final step was taken in carrying through the advance in the grazing fees proposed in 1916 and inaugurated in 1917.

Unquestionably the value of the range to the live-stock producers and to the country can be developed to a higher point by constructing more improvements and pushing further the investigations which make possible the most efficient and complete utilization of the forage crop and the most highly perfected methods of live-stock management, say representatives of the Forest Service, United States Department of Agriculture.

That the receipts from grazing now exceed those from timber by more than $1,000,000 and form 59 per cent of the total receipts from all sources is due to the fact that practically the entire forage crop can be utilized under present conditions, while the annual timber cut is but an insignificant fraction of the sustained yield obtainable from the forests, or of the total cut of the country. The receipts of 1919 were 175 per cent of those of 1915, while the cost of operating the forests remained practically stationary during these four years.

KEEPING SHEEP FOR MUTTON

Sheep are not very generally kept on farms for supplying the home family with meat. There are many areas, especially in hilly or mountainous regions, where nearly every farm could keep a few mutton sheep to advantage. Boys' and girls' clubs in some parts of the country have done much to foster home production of mutton.

Sheep naturally graze over rather wide areas and seek a variety of plants. This habit particularly adapts them to being kept in large numbers on lands of sparse vegetation or furnishing a variety of grasses or other plants, says the United States Department of Agriculture. They do better on short and fine grasses than on coarse or high feed. They will eat a good deal of brush and, if confined to small areas, will do a fair job at cleaning up land. When used in this way, or on land producing brush only, they can not be expected to prove very satisfactory in the production of good lambs or good wool.

MAKE PRODUCERS OF "USELESS MEMBERS," SAYS SECRETARY

(*Continued from page 1.*)

of mind on the part of the farmer or spur him to greater production to be obliged to sell his products for half or less than he later sees them sold for at retail. The dairy farmers of the country wonder if they are treated fairly when they receive 35 to 40 cents for butter and see it retail at 85 cents. The poultry men wonder why, when they receive from 40 to 50 cents for eggs, they retail as high as a dollar per dozen. The hog growers wonder if they are not in a 'hazardous' business when they buy fencing and all other supplies at greatly increased prices, and then see their produce fall 50 per cent and sold by them at an actual loss, in answer to a demand on the part of the rest of the population for a reduced cost of living.

"The farmers of America," the new Secretary went on, "are willing to assume their part of the responsibilities as American citizens in meeting any problem threatening the welfare and stability of our country, but this high cost of living problem is a mutual one, and they ask that it be approached by all the people as a common problem. They ask that those engaged in distribution eliminate the lost motion and not put so great a burden upon production as there is upon it to-day. In other words, they ask that there be an adequate number of producers of wealth, and this includes property and food of all kinds, and only such number of distributors as is necessary to perform the services required. They ask that the banks, railroads, wholesale houses, retail establishments, factories, all of which are vitally necessary to the farmer and recognized by him as such, be speeded up along with him, that the work now done by three men may be done, if possible, by two, and the burden of transportation and distribution be thereby lightened. If the factory executive will speed up his plant that there may be two days' labor in the supplies, machinery, or what not, that the farmer buys, rather than three days' labor, the article will cost the farmer that much less, his profits be increased, and his production stimulated, more men stay on the farm, more men go to the farm.

Put Useless Employees at Productive Work

"Business men must look to the operation of their establishments, no matter in what line they may be engaged, and see that no useless employee is retained to add to the cost of distributing what the farmer now produces. Useless employees must be released from nonproductive work that they may go into productive work and add to the sum total that may be distributed among all.

"Let us enjoy in America as highly developed a system of distribution, and in this I include all the professions, doctors, lawyers, teachers, as well as retailers, transportation, etc., as we now have, but let us cut out the useless member, the surplus one here and there, and give him an opportunity to become a producer upon the farm, or in the factory. Let us have six-tenths of our people in production and four-tenths in distribution, that there may be six-tenths of what a man can produce each day for each of us, rather than have four-tenths in production and six-tenths in distribution, which gives us only four-tenths of what a man can produce each day for each of us. To do this conditions in production must be attractive, farming must be remunerative and offer to a young man who engages in it an opportunity equal to that offered him should he go into a bank, railroad, wholesale or retail establishment.

Labor Must Meet Farmer Halfway

"The farmer asks that the laborers in the mines, the factory, and the mills, who are also real producers along with the farmers, make an effort comparable to his to see there is just as little labor expense as possible in each article turned out by their hands, thereby helping the farmers of America, who in turn will help the laborer. This is not inconsistent with the views and desires of the loyal, intelligent laboring men, who recognize the mutual advantage to all in an honest day's work for an honest day's pay. Given this, and the manufacturers, jobbers, and retailers taking a reasonable profit and recognizing the harm that must ultimately come from profiteering upon the farmer, the question of the high cost of living will largely solve itself to the permanent good of all concerned.

"On the other hand, if the whole country, all business and all labor, does not recognize this as a common problem," the Secretary continued, "and do those things which give the farmer a fair compensation for his efforts, do those things which make farming remunerative, pleasant, and as attractive as other lines of endeavor, the conditions will not improve. On the contrary, more and more will the young men leave the farms, more and more will the older men become discouraged, and less and less will there be of farm produce to divide among the whole people for their sustenance, and higher and higher will go the price of that which is produced.

All Must Strive for Cheaper Distribution

"Attention must be given by public-spirited citizens to the methods which tend to quicken and cheapen distribution of farm products, such as better terminal facilities, easier transfers, inland water transportation, back hauling and round-about routes eliminated. We must all interest ourselves in helping solve the problems of the farmer and furnish him facilities that will help him in his business. While such facilities must be furnished, we find on the contrary there is now being made an assault on the Farm Loan Bank, which gives the farmer money on favorable terms, without commissions, without renewal charges, finances him to carry on the fundamental activity of our country, gives him long time that he may plan ahead where necessary. The assault is made by selfish interests, and their success would, in my judgment, be a blow to agriculture in America and result in ultimate harm to all interests. But how many business men in America have recognized this as their problem, or interested themselves in the farmer's behalf? Very few, and yet they could well afford, in fact must, interest themselves in this and other problems affecting the farmer, or they will feel the reaction.

"The farmers of America are willing and anxious to meet the problem of reducing the cost of living as a mutual one. They seek the cooperation, support and sympathy of the business world, and receiving it they will do their part and more. All of us working to this end are strengthening and making permanent agriculture, the very foundation of our whole structure, and therefore doing well for our country as a whole. Every person, no matter in what walk of life he may be engaged, should have a sympathetic, helpful interest in agriculture, be helpful to the farmer, and see he gets a fair, square deal in all matters. Surely such an attitude is an expression of the highest type of patriotism in peace."

CIVIL SERVICE EXAMINATION

An open competitive examination for library assistant is announced by the United States Civil Service Commission. A vacancy in the Engineer department at large, Washington Barracks, D. C., at $1,200 a year; three vacancies in the Department of Agriculture, at $900 to $1,000, will be filled from this examination. Date of examination, February 18, 1920. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

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Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

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J. A. EVANS NOW SUPERVISES EXTENSION WORK IN SOUTH

J. A. Evans has been appointed chief of the Office of Extension Work in the South, United States Department of Agriculture, and has taken charge of the office. He succeeds Dr. Bradford Knapp, who resigned to become dean of the College of Agriculture, University of Arkansas.

Mr. Evans was promoted from the position of assistant chief, which he had held since Bradford Knapp became chief in 1911. He was the first demonstration agent appointed by Dr. Seaman A. Knapp, the originator of the system, and has been continuously associated with the work ever since. His original appointment was as demonstration agent for southern and eastern Texas. Within a year he was selected as chief assistant to Dr. Seaman A. Knapp. Several years later, when the growth of the work made it necessary for Dr. Knapp to make headquarters in Washington, Mr. Evans was placed in charge of the work in Louisiana and Arkansas and remained in that position until he was called to Washington as assistant chief.

Mr. Evans was born and reared on a farm, operated a farm of his own for several years, and has been directly connected with agricultural activities all his life. He is widely known throughout the South and has frequently addressed conventions of farmers, bankers, and educational workers in that section on agricultural subjects.

GEORGE LIVINGSTON MADE CHIEF OF MARKETS BUREAU

George Livingston has been appointed Chief of the Bureau of Markets, United States Department of Agriculture, effective January 27. He has been acting chief of the bureau since July 1, when Charles J. Brand resigned.

Mr. Livingston is a native of Ohio, and is 34 years old. He was educated at Ohio State University, Cornell, and the University of Halle. He was instructor in farm crops, Iowa State College of Agriculture and Mechanic Arts in 1909 and 1910, and taught agronomy in Ohio State University from 1911 to 1915. During 1914 and 1915 he was acting chief of the Department of Agronomy, and at the same time was associate agronomist of the Ohio Agricultural Experiment Station.

He came to the United States Department of Agriculture in 1915 as assistant marketing specialist. In 1916 he was given the position of specialist in grain marketing. He remained in that position till he became acting chief of the bureau. He was in immediate charge of Federal grain supervision under the United States Grain Standards Act and directed the work of grain supervisors and their assistants in the 36 Federal grain supervision districts of the country. In addition he had general supervision over all of the grain and hay marketing activities of the bureau.

Mr. Livingston was born on a farm and lived there until he was 18 years of age. Since that time he has been continuously engaged in some phase of agriculture.

INVESTIGATES ABUSES IN PICKLING IMMATURE OLIVES

Abuses which have arisen in pickling and coloring immature olives to simulate pickled ripe olives have led the United States Department of Agriculture to investigate the subject and compile data which can be used in detecting such dishonest practices. These investigations show that the test of maturity for olives, both fresh and pickled, is the percentage of oil in the fruit flesh. Allowance, of course, must be made for variations due to varieties and the localities in which they are grown. The department's experts suggest that a minimum oil content of 17 per cent in the flesh be taken as a tentative standard of maturity for Mission olives and other common varieties, except the Manzanillo, Ascolano, and Sevillano. A minimum oil content of 15 per cent is recommended as a tentative standard for Manzanillo, but no standards for maturity are recommended for the large-fruited Ascolano and Sevillano olives, which must be gathered when relatively immature. They point out, however, that these should not be sold under the designation "ripe."

Because of the great variations that were found to exist in the composition of olives of the same variety grown in different localities, it probably never will be practical to set hard-and-fast minimum requirements for oil in mature olives, and department officials state that the standards suggested must be applied with caution. Copies of the bulletin, the title of which is "A Chemical Study of the Ripening and Pickling of California Olives," may be had by addressing the United States Department of Agriculture, Washington, D. C.

TYPES OF BEEF ANIMALS FOR HOME CONSUMPTION

The farmer buys more beef than he takes from the farm. Only about 10 per cent of meat furnished by the average farm is beef. In the North and West the average consumption of beef per family is nearly 300 pounds and in the South it is less than 100 pounds.

The beef animal killed for home use, suggest specialists of the United States Department of Agriculture, may be a beef steer (fig. 5) or an unprofitable cow, or a heifer that does not promise to be a good producer and would not bring a good price for beef on the market. Very little veal is killed on the farm for home use. Much of the beef bought by farmers is bought in the summer from village butchers who operate meat wagons or cars in the country. On the average farm there are no facilities for keeping fresh meat during warm weather.

Where do you live? The best place is Easy Street. You get there through Safety Lane. Take the War Savings Stamps Road.

What Science Has Done for the Farm And What Farmers Must Do for Science

The other day a farmer in Ohio asked the Federal Department of Agriculture what science had done for the farm. He said that many farmers still are inclined to spurn the efforts of the scientist who works laboriously for many years on a problem of some branch of farming; that there is not the appreciation there should be among farmers of the work of the department and the several State institutions. Edwy B. Reid, Chief of the Division of Publications, sent the following reply:

"Your letter to the Secretary of Agriculture has come to this office for reply. You say that farmers generally do not appreciate what science has done for agriculture, and you illustrate with instances from your own experience. Then you suggest that this department prepare a pamphlet on 'What Science Has Done for the Farm.'

"Unfortunately, we are not in position now to undertake that task. We have no single publication, it is true, that covers the subject. But we have issued more than 1,000 Farmers' Bulletins and nearly as many Department Bulletins, every one of which treats of some phase of what science has done for the farm. Not one of those bulletins could have been written except for the patient, painstaking investigations and experiments of some scientist. Among those bulletins, many a one represents the work of some man's entire life. Others of them combine the results of the efforts of many scientists through a number of years.

"These facts, as you say, are not appreciated—but they are used. The farmer very frequently does not know whence came the knowledge that he uses to put money into his pocket. Possibly he has never read a Farmers' Bulletin in his life. But some neighbor, perhaps, has read them and utilized the information, and this man who sees nothing good in the work of scientists may have grown rich by emulation of his neighbor.

"And application, not appreciation, is the chief end that scientists seek. Scientists, as a rule, do not advertise themselves. There is, however, this danger in lack of appreciation. The present scale of salaries for scientific men in Government service can not long maintain the high standard of scientific endeavor that has made possible the tremendous advance in agriculture in the recent past. Younger men of first-rate ability will be slow to take up scientific work with the Government at present salaries. The one influence that could make itself most potent in curing that condition would be general appreciation on the part of farmers of what science has done for farming.

Panama Canal Due to Veterinary Discovery

"And that service, indeed, can hardly be measured. It was only a little while ago that no farmer could be sure that all his hogs would not be dead of cholera in a day. Now, because of the scientists, he knows that he can protect himself against that disaster. It was not two decades ago that cattle scabies was prevalent over nearly one-half of the United States. Now it appears only as outbreaks in limited areas. Much the same is true of sheep scabies, of glanders, and dourine in horses, of many other diseases. Animal tuberculosis is under control. Contagious abortion of cattle is beginning to yield to scientific knowledge.

"Some of these scientific discoveries have been of such far-reaching importance that not only agriculture but practically every phase of human life was benefited. A veterinarian in Government service discovered that splenetic fever in cattle was caused by the presence of a tick. To that man's account, it has been said, goes the credit for the successful construction of the Panama Canal. Without his discovery the canal could never have been put through. That discovery was the revelation of the whole field of insect causation of disease. It led to the revelation of the mosquito as the bearer of malaria and of yellow fever. It has saved thousands of human lives and it has removed forever the terrible fear that used to haunt men's minds when epidemics of yellow fever were common and when no one knew where or when the outbreak might come.

"There are many animal diseases that the American farmer does not have to worry about. Rinderpest has never made its appearance here. Foot-and-mouth disease has three times entered, but has as often been driven back across the ocean. The one could not have been kept out and the other could not have been eradicated except for the work of scientists in Government employ.

Plant Products Protected by Science

"Results no less notable have been obtained in the plant kingdom. From time immemorial, black stem rust of wheat took heavy toll of the world's chief bread grain. Many a farmer, with good hopes of providing for his family in comfort, has been reduced to bankruptcy and his loved ones to want by the appearance of rust in the fields of wheat that were to make his fortune. Then the scientists discovered that, without the common barberry as an alternate host, black stem rust could not attack a field of wheat. Never again need a farmer be ruined by this enemy of his fields.

"The San Jose scale got across the Pacific Ocean and threatened utterly to destroy the fruit industry of the Pacific coast not only, but of the entire United States. But all the fruits that ever grew are growing still. The scientists found the means of controlling that pest.

"There is another, the Mediterranean fruit fly, capable of even greater destruction than the scale. It does not exist in the United States. But for the work of the scientists, it would have come in years ago, and, unchecked, would have spread disaster.

"The list of such achievements is so long that, were an effort made merely to mention all of them, the result would be not a pamphlet but a thick book.

"Three years ago this country had its attention suddenly diverted from peace to war. A writer in this department has used 70,000 words in making not much more than a catalogue of what the scientists in the Department of Agriculture alone did toward winning that war. When the Germans had captured nearly the whole of the world's supply of flax, the agricultural scientists kept the airplanes of the Allies in the air by making a cotton substitute for linen in the manufacture of airplane wings. Woods were required in 1917 that, under the known processes of seasoning, could not have been made ready before 1923. The scientists discovered seasoning methods that reduced years to months. The scientific 'plant scouts' knew where to find, in remote corners of the earth, materials for making the kinds of charcoal that would render impotent each deadly gas that the Hun employed. Every time a soldier waded a flooded trench with dry feet, every time he went to bed under a tent that did not leak, with no cooties scrouging under him and no rats running over him, he was enjoying the benefits of the work of agricultural scientists.

"In the solution of scientific problems that plagued the farmer and other people, the Sauls of this generation have slain their thousands. But it remains for the Davids of the next decade or so to slay their tens of thousands. Without the intelligent appreciation of the men whom their work most benefits, they may not be able to do it."

Setback in Tick Eradication Work May Result from State Carelessness

At the annual convention of the Southern Cattlemen's Association in Montgomery, Ala., January 28, Dr. R. A. Ramsey, chief of the tick eradication division of the Bureau of Animal Industry, United States Department of Agriculture, made an address, in the course of which he said:

"It is not my intention or desire to inflict on this association a long story of our perplexities and adversities further than to state that the work is now in a somewhat critical condition. In the 509,084 square miles released from quarantine there are, of course, a few infested premises or centers of tick infestation which must be held under control until such time as the last tick can be put out of existence. This condition, taken in conjunction with the effort to eradicate ticks from the area still under quarantine, means that Federal funds and State funds have to be spread very thinly over a very large territory and a very large amount of work. In fact, the funds have to be spread so sparsely that at present it is difficult to concentrate efforts in certain areas to such a degree as it was done a few years ago.

"To one who is not familiar with the work and conditions it would appear that the areas which have been practically freed from ticks, with the exception of very localized sections, could be left to the tender mercies of State organizations. The difficulties connected with such a plan are about what has been experienced by the bureau in its work of eradicating cattle scabies and sheep scabies in the Western States. During the time that the Federal Government is actively cooperating with the States in the eradication of diseases and in the enforcement of Federal and State regulations, there is generally a disposition on the part of the States to eliminate local politics from live-stock sanitary work and to organize in such a way as to obtain the very best results. In fact, such a procedure is required before bureau cooperation is obtained.

Inefficiency Creeps In

"However, it has been found that as soon as the work is practically completed and the greater portion of the State released from quarantine the State legislature immediately finds a place to economize by greatly diminishing the appropriations formerly made for the eradication of live-stock diseases. When these appropriations are reduced, interest in the work is reduced, and there is shown in nearly every State a disposition to replace competent State live-stock sanitary officials familiar with the work by men whose main qualifications are loyalty to the particular party or administration in power. As a result of this change in State attitude and organization, a small amount of disease infection soon spreads, until in a few years former conditions are likely to prevail, necessitating a duplication of the campaign for eradication. Then opponents to the work are given an opportunity to say, 'I told you so.' From time to time, as opportunity has presented itself, I have endeavored to advise and warn some of the southern States against making the same error that was made in the Western States, but with very little avail.

"It is by no means my intention to intimate that State legislatures or State executives are vicious or willfully negligent regarding the support of live-stock sanitary work and the development of cattle or other live-stock industry. But many of them are simply uninformed as to the importance of properly supporting such activities and thereby increasing the revenues and developing the resources of their States.

"You have asked me for an expression as to what the southern cattlemen can do toward helping complete the eradication of ticks. You can do a great deal. You can do some very important things that employees of the Bureau of Animal Industry engaged in tick eradication, and State officials and employees doing the same kind of work, can not possibly do. The southern cattlemen can relieve the men directly engaged in the actual work of tick eradication of the responsibility of obtaining appropriations and of obtaining the moral support of State legislators and executives.

Small Infected Centers Dangerous

"My plan is that two members of the Southern Cattlemen's Association should visit in person each State legislature during the time it is in session. They should by appointment meet the agricultural committee of the House and Senate and discuss with them the needs of tick eradication and the manner in which it should be provided for by laws, including amendments to statutes and adequate appropriations. They should go, not as lobbyists with a hidden motive, but as business men frankly working for the upbuilding of their State. They should confer with the legislative committee as representatives of the Southern Cattlemen's Association, expressing the opinion and desires of their association as to the steps to be taken for the good of tick eradication and for the development of the live-stock industry in the Southern States. This delegation should also obtain a hearing from the chief executive of the State and fully inform him as to their desires and the importance of getting State laws and other liberal appropriations with which to conduct the work.

"There is imminent danger when any State becomes careless about discontinuing tick eradication when there are still a few counties or localities or small centers where tick infestation exists. The infestation in these centers, if not completely eradicated, is going to spread. Furthermore, these small centers of infestation in all States are liable to be used by politicians for purpose of barter. This has been demonstrated in the State of Virginia, where three tick-infested counties still remain in quarantine and are likely to stay there indefinitely because certain State officials and live-stock sanitary officials saw proper to trade off tick eradication in these counties for a few votes on some other legislation which did not pertain to tick eradication. An energetic drive should be made, especially in States where tick eradication is nearly completed. Let us finish tick eradication now."

METHODS IN SHEEP RAISING SHOWN IN MOVING PICTURE

A motion-picture film dealing with sheep on the farm has recently been completed by the film laboratories of the United States Department of Agriculture in cooperation with the Bureau of Animal Industry. The film is now available for use by county agents, county or State sheep-breeders' associations, agricultural colleges, and other department or cooperative workers or agencies.

The film is in three sections and four reels. About 45 minutes is required for the showing of the whole production.

The subject treated in the first and second reels is a year with the flock on the farm, beginning in the fall at the time that the ewe flock should be culled prior to breeding, and carrying it on through until the lambs are sold. Each seasonal practice is brought out and educational points are featured. The third reel deals with the cooperative marketing of wool and lambs, and the fourth reel with the slaughtering of a mutton sheep, dressing the carcass, and then cutting it up for meat consumption.

Home-Demonstration Agents Instruct Foreign-Born Women in American Ways

When the European immigrant comes to America it is not many weeks before he wants and demands American viands on his table. Some few may be purchased ready cooked, but it is necessary to prepare most of them in the home, and that is where the foreign-born wife and mother usually comes to grief. There is no one to teach her how to cook the strange foods, and if she had the instructions in English she could not read them, for the wife in the foreign family is usually the last one to learn American speech and ways, because she comes little into contact with the outside world.

The children, as soon as they are of school age, want their clothes to look like those of the other children, but their mother does not know how to use American patterns, and so they wear a combination of American ready-mades and foreign garb. In a large number of instances this inability of the foreign woman to cope with the problems she encounters in the new world has been the cause of the lessened respect for her in the eyes of her husband and children.

English Language Taught

Realizing the necessity of instructing foreign-born women in American ways of living, the home demonstration agents of the United States Department of Agriculture and the State agricultural colleges are teaching them how to make an American home, and incidentally how to speak the English language. The organization of these women is rather difficult, for many foreign husbands are opposed to the wife becoming Americanized to the extent that she is often absent from home. So long as he or his children are being benefited by advice given in the home on their food he is willing for his wife to learn, but he is opposed to her going elsewhere to receive instruction.

However, women are women, even if born under different flags, and when the word seeps through a neighborhood that at So-and-so's home an American lady is teaching how to make a waist just like those in the store windows, or is showing Angelica how to cook some of these queer American foods, shawls go over heads and the little house where the extension service emissary holds forth is soon packed. At every demonstration new neighbors come in to beg the use of the pattern for baby's dress or to learn how to cook the contents of some hidden-away package that defied them after they had bought it.

At Paterson, N. J., this work is becoming so popular that it is almost impossible to follow up the demonstrations given in the foreign homes or to go to all the houses where help is asked, but through the milk stations and the school nurses the families in particular need of instruction are easily located.

Thrift Kitchen Popular

One of the home demonstration agents in Buffalo, believing that better results would follow if the women could be induced to leave their home to get the instruction, has opened this winter a thrift kitchen especially for foreign-born Italian women. Prominent Italian laymen and clergy indorsed its establishment and it was well advertised by announcements in schools and churches and at the macaroni factories. The prejudices of the Italian husbands were handled in so diplomatic a way that the success of the little thrift kitchen seems assured. These men, who believed that a woman's place is in the home and that she should stay there, were invited to come with their wives to the opening of the kitchen, and the lure that brought a crowd was the best music that Buffalo's local talent could furnish. As the Italian is a music-loving person, everyone at the "social" had a good time, and so far no objections have been advanced against the wives going back to learn how to cook and sew in American fashion. The day after the opening a continuous stream of callers, many of whom could speak no English, came to the kitchen. In the evening came the girls from 14 to 16 years who worked in the clothing and macaroni factories, and they were so delighted with the place that they asked if it might not be opened to them every evening and on Sundays.

STEPS TAKEN TO ENFORCE FOOD-LEGISLATION LAWS

The chief steps in State food legislation during the past year, says Dr. Carl L. Alsberg, Chief of the Bureau of Chemistry, United States Department of Agriculture, were State laws requiring the candling of eggs near the source of production, bringing about more effective control of the soft-drink industry, and insuring correct labeling as to ingredients of stock feed.

Egg-candling legislation resulted largely from work on conservation of eggs during the war, the outcome of recommendations made by the Food Research Laboratory, Department of Agriculture, to the Food Administration. Candling of eggs as near as possible to the source of production was enforced during the war through cooperation of the Food Administration, the Department of Agriculture, and State food officials. The results were so gratifying, both in improved quality of eggs on the market and prevention of loss from spoilage, that many States have taken it up as a permanent feature of their food-control work. Eggs that are cracked, show loss of bloom or evidence of having been wet, evidence of incipient spoilage, or other defects are good if used at once, but will not stand transportation. Candling at the source separates them out for local consumption, preventing loss of food and saving transportation and storage charges.

Since it became apparent that prohibition was to became an established fact, the market has been flooded with a great variety of soft-drink concoctions. Some of them have no merit and a few may be harmful. Any mixture sold as a soft drink, Dr. Alsberg points out, may become harmful to health if it is not put up and handled in a sanitary manner. Some of the bills introduced in State legislatures on this subject provide, as a means of sanitary control, a State license system for soft-drink manufacturers and bottlers. Some such provision, he says, is necessary for effective control of this important industry.

The high cost of feeding stuffs has increased the temptation for dishonest dealers to substitute cheaper substances of little or no feeding value. In many such cases, claims of high feeding value are made on the labels. Federal and State food officials are cooperating to correct these abuses so far as is possible under existing law, but additional legislation, both Federal and State, is necessary to full control of traffic in adulterated and misbranded commercial feeds. Proposals have been made in several States to confer authority to fix standards of classification for the various grades, to require a statement on the label or invoice of the kinds of ingredients used and percentage by weight of those that have little feeding value, and to prohibit misbranding and adulteration. These new laws, Dr. Alsberg says, will aid materially in the States where they are applicable.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

How Agricultural Club Work Helps to Make Better Homes

How the work of a home demonstration agent may help to shape the whole future of a home is well illustrated in the experience of a Sampson County, N. C., woman who tells in the following letter just what she has got out of the extension work supervised by the United States Department of Agriculture and the State agricultural colleges:

"I was a stenographer for several years before marrying. I found when I had a home of my own to manage that there was much about cooking and household work which I didn't know.

"Four years after we were married, we moved to Sampson County, N. C., where we had the services of an excellent county home demonstration agent. She was beginning her canning club work for the year when we moved into the county and, as I was anxious to learn the best methods of canning, I joined the club in her community. The club bought a canner and a supply of cans.

Learning the "How" of It

"That year I canned 150 cans of tomatoes and other vegetables in tin, and enough in glass for the family's use. I sold 150 cans at a good price. Of course, this was not many cans for a year's work, but I learned the methods and also learned that we could make good money by going into this work on a larger scale. The following year I canned over 1,000 cans and sold them readily at from $2 to $3.50 a dozen.

"As soon as the canning season was over our demonstration agent began giving cooking and better butter-making demonstrations to the clubs. I became very much interested in this work and learned many new ideas for saving time and food; I also learned the very best ways of cooking many things.

"In the butter making we were requested to use the rectangular mold and cartons, so that we could market or exhibit the butter to a better advantage. In January, 1918, there was a large dairy show at Wilson, N. C., in which dairy products from all over the State were exhibited. The demonstration agent asked all of our club members to send butter to this show. I sent 2 pounds and received first prize—a $75 cream separator.

Premiums Won at Fairs

"We were also asked to take part in the community and county fairs by placing canned goods, samples of cooking, etc., on exhibition. I was well paid for the interest I took in the fairs by winning a number of premiums at our community fair and at two county fairs.

"I have received the greatest help this year of any year since I have been in the work. The home demonstration agent had a 'making over' campaign in which she showed the economy in remodeling old clothes, suits, coats, etc. I had two coat suits and some other clothes that were good but out of style. She helped me to make these over, and I have all of my winter clothing made from 'out of style' garments. They all look as good as new, and some of the dresses were better than any I could have bought for $50. They did not cost me a cent, except for thread, a few trimmings, and a little work. Anyone who will take interest in the demonstrations given by a county home demonstration agent can not help being repaid for time a thousand-fold."

WOMEN SAVE ON SUGAR BY BUYING TOGETHER

Farmers in Montgomery County, Va., have been buying fertilizers cooperatively for many years. Sometimes several carloads are ordered at once and the saving on a ton is appreciable.

The home demonstration agent of Montgomery County, working under the auspices of the United States Department of Agriculture and the State agricultural college, suggested last spring that the women might find it quite as profitable to buy sugar cooperatively. The local merchant quoted the women's club a price of 9½ cents a pound if 2,000 pounds were ordered. It was not at all difficult, with the canning season coming on apace, to find 20 women who would order 100 pounds each. The order was placed late in April, but owing to the shortage of granulated sugar it was early in July before the shipment was made. Meanwhile the price had advanced to 11 cents a pound.

The sugar was carted from the car directly to the home of one of the members, and from there distributed.

Plump Cheeks and Rosy Ones Come When Children Drink Milk

There is a striking difference in weight, appearance, and general health between a child who has a quart of milk every day and one who has little or none. Milk feeding demonstrations to prove this point to parents have been carried out by home demonstration agents, supervised by the United States Department of Agriculture and the State agricultural colleges.

The usual procedure is to select a group of children who are free from any disease that might prevent a normal gain, weigh them, and give them for a period of weeks 1 quart of milk daily. During the demonstration they are weighed weekly. Their gains in health, weight, and appearance are always such as to make an impression on all the parents in that school or locality, whether their children are in the demonstration or not.

An unusually successful milk demonstration of this type was recently completed in Hampden County, Mass. Forty-eight children, who had been examined by a physician and found free from disease, were divided into four groups. Each child received 1 quart of milk daily for a period of six weeks. In each of the four groups the work was organized and carried on in cooperation with a local health organization. Many nationalities were represented in the groups.

All the children in this demonstration were under weight at the beginning of the experiment and many of the children who were selected were pale and anaemic, with soft, flabby muscles. In every case the remainder of their diet was more or less meager and limited.

The 48 children in 6 weeks gained a total of 1,426 ounces. The normal gain for the same number of healthy children, carefully fed over the same period of time, would have been 531 ounces. Several of the children temporarily lost weight because of minor illnesses.

Eight of the children, one-sixth of the entire group, made phenomenal gains of more than five times the normal. A boy who had drunk milk only occasionally gained 64 ounces. At the beginning of the experiment this lad was 13½ per cent under weight. One of the youngest children, who, previous to the milk demon-

stration, had been fed only on condensed milk, gained five times the normal. His mother reported that his nervous condition was also greatly improved, and that he slept more quietly.

The champion of the 48 children was a little 11-year-old girl. She gained 88 ounces, and the deepening color in her cheeks showed improved health as well. One little girl out of the 48 did not gain, but she cared for 5 younger brothers and sisters while her mother worked in a factory, and it was thought she shared her quart of milk with the others.

Many Housewives Are Learning to Save Through Careful Buying

The modern housewife is becoming expert in buying. She is reading the labels, in accordance with the suggestion made by the United States Department of Agriculture, and checking up the weights and measures of the food products she buys. She has learned when to buy in quantity and when in small amount, and when it is more economical to buy in bulk than in package. Many have compared the cost of making bread at home and of buying it and are choosing the way that is best for them.

The lessened buying power of the dollar has made her think and avoid all kinds of waste. The family must be kept well nourished, but the wife and mother should not provide more food than is needed. She must know what kind of food will fill her market basket to the best advatage. Along with this knowledge is that of how much of the family food should come from each food group and how far it is wise to save money by using more food from the less expensive groups. The housewife of to-day is keeping a food account and checks up her weekly buying by the plan she has made.

If she wishes to try to lessen prices for everybody here are some of the ways she is going at it: By producing food at home; by using local products; by choosing food that is plentiful in the markets; by lessening her use of such foods as are scarce; by cooperative buying; and by using the parcel post.

BANK BACKS BETTER LIVE STOCK

With the publication of a 4-page farm-news leaflet, of which a current copy is a "Duroc Sale and Pig Club Number," a bank at Fond du Lac, Wis., is encouraging its patrons to improve their live stock. The editor of the sheet has the unique title of "bank agriculturist," and his activities are devoted largely to financing farmers who wish to acquire well-bred animals or to become joint owners in valuable sires.

In a letter to the United States Department of Agriculture the bank agriculturist calls attention to the support being given hog-cholera control, pig-club work, and other activities in which the Government is active. The leaflet contains a "For Sale and Want Column," relating especially to live stock, gives current news among breeders and contains discussions ranging from the care of cattle to the handling of bees. An expressed purpose of the bank's activities is "to make Fond du Lac County a land where milk and honey flows."

Early Planting of Corn Gives Natural Selection Chance to Develop Hardy Plants

Extensive corn experiments conducted by the United States Department of Agriculture throughout the United States as well as in the insular possessions, show that corn possesses marked powers of acclimatization and the ability to adapt itself to a wide range of conditions. To realize full benefits from this easy adaptability, natural selection merits a chance for full operation. Earlier planting in the North enables natural selection to eliminate the weakest plants. On the other hand, "babying" or "pampering" result in the perpetuation of weakling plants which never are capable of complete and profitable production. That is why it pays to apply the test of the Spartans to the young corn plants—allowing only the strongest to survive.

Should Plant Large Kernels

Corn development in the United States is restricted by the fact that corn planting machinery discriminates against the largest and best kernels, which will not pass through the average planting box without being broken or crushed. Corn growers should always be sure that the largest kernels of seed corn will pass through the planter without injury and they should arrange their corn-planting plates with this in mind. The large, well-formed kernels are the most desirable for planting operations, as they contain more nourishment and will develop into more vigorous stalks capable of yielding larger and better ears of corn.

The use of planter plates with small holes prohibits the reproduction of the most desirable kernels. Plates of this description are in common use because the manufacturing concerns adapt the size of the plate to the size of the average kernel of corn which is planted, their idea being to promote accurate dropping rather than the planting of large as well as medium-sized and small kernels. In defense of the small planter plates, the manufacturers claim that if the size of the holes should correspond with the larger kernels, the average farmer who plants medium-sized seed would waste grain as a result of using larger plates, as two of the smaller kernels doubtless would pass through the planter to one of the large kernels.

Early Planting An Aid

Corn culture is in a pitiful stage of evolution. If the grower does not follow natural selection his crop will not improve, while if his operations are in harmony with natural selection, he is able to better the corn markedly. Along this line, it is possible to plant the crop earlier and to allow natural selection to pick out and retain the most hardy plants.

Showing the ability of corn to adapt itself readily, the United States Department of Agriculture grew corn native to Wisconsin in Texas for five years under a method of proper natural selection. At the end of the period seed of the Texas product was planted in Wisconsin and in no respect was the crop different from yields from native seed. Similarly, by the practice of selection for earliness and the development and intensification of certain characteristics, it is possible to acclimate and adapt a southern variety of corn for profitable production in the North.

"BEST SIRES ARE CHEAPEST"

"We have been in the cattle business for more than 35 years and have always kept the best purebred sires we could buy."

With this remark in a letter to the Federal Bureau of Animal Industry, C. H. Faires, a Texan, applied for enrollment in the "Better Sires—Better Stock" campaign.

"We have always tried to teach the people to use purebred sires of all kinds of stock," he added. "Our motto is the 'best is the cheapest' of anything we raise whether it be cattle, horses, mules, sheep, poultry, or dogs. We have found this paid as well with dogs as with everything else."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Benefits Follow Drought.

The shipment of cattle from drought-stricken areas in Texas during the summer of 1918 has resulted in benefits greater than merely saving the animals, according to a report of the Bureau of Animal Industry, United States Department of Agriculture. Nearly 300,000 head of cattle were shipped from Texas to the Southeastern States. A large number of the animals were bought outright in small lots and went into sections of the Southeast, which promises to be the Nation's next great area for expansion in beef production. Most of the animals were cows, and where properly cared for they have given farmers a start of from 5 to 10 years over the usual methods of grading up native stock by purebred bulls. It cost the Government only a few cents a head to move the cattle. If these well-bred animals, the report shows, had not been moved and saved as they were, they would have perished on the ranges or would have been slaughtered at market centers.

Destroying Pocket Gophers.

The Bureau of Biological Survey, United States Department of Agriculture, the Extension Service of the University of Arizona, and the local county agent have begun a campaign against pocket gophers in Maricopa County, Ariz. The "enemy" numbers many thousands and has "dug himself in" throughout a large section of Maricopa County. Poison prepared according to a formula worked out by the Federal Government is employed in the work of extermination. At the beginning of the campaign 4 pounds of poison, sufficient to kill about 700 gophers, was distributed to each cooperating farmer to be used according to specific instructions supplied by those directing the work.

There are many charges against the gopher, chief of which is that he has been killing many fruit trees by gnawing at their roots, destroying alfalfa and other valuable farm crops, and has bored into many irrigation ditches so that the water has broken through, doing untold damage to crops and highways.

This campaign of extermination is but one of many being conducted in various Western States where, according to Biological Survey estimates, the damage done by gophers, totals tens of millions of dollars.

Progress in 20-Year Experiment.

The 20-year breeding experiment which the Bureau of Animal Industry, United States Department of Agriculture, is conducting in cooperation with the Kansas agricultural experiment station at Manhattan, has been in progress since September 1, 1915. The principal objects are to determine whether the milking tendency in beef cattle is transmitted mainly by the dams through the male line of descent, and to what extent this milk-giving function of the dam influences the beef character of the progeny. Several steers and bull calves have shown unusual merit and have become prize winners of importance.

Experiments of the kind mentioned are particularly adapted to cooperative Federal and State work. The great length of time necessary for satisfactory results in cattle breeding and the need for records of official character make it difficult for individual breeders to conduct the work in a manner likely to be of general value to the industry.

Hens Help Boys in College.

New honors are due "Biddy," the barnyard fowl, since 225 of her have pooled their efforts and are helping put three boys from Goshen, Conn., through Connecticut Agricultural College. The hens, which now reside not far from the college, are doing a mighty good job too, for the boys know how to care for them. In fact, the boys' interest in college, and hens as well, goes back to their membership in the Goshen Poultry Club, one of two organizations that engaged in a contest intended to show what intelligent care can do in raising poultry.

It was a Marathon race, so to speak, that lasted over a year, the finish taking place last October. And it was a race for real money, $1,000 being the prize. Strangely enough, both sides won. A net profit of $1,000 from each group of hens in a period of one year was the goal set for each club, and both groups cleared considerably more than that amount. Eleven boys living near Goshen (including the three now tending their flocks while going to college) constituted one club, and the other, known as the West Hartford Poultry Club, was composed of boys living near Hartford. The unique contest was suggested by the State club leader of Connecticut, who had the cooperation of the poultry extension specialist of the agricultural college.

In a sense each club was racing against time to see if its hens, which aggregated approximately 400, could be made to produce $1,000 profit in a year. Naturally also there was rivalry between the two clubs to see which would make the biggest showing. Both clubs held monthly meetings at which each boy reported regarding his flock—the number of hens, the number of eggs laid, the amount of scratch feed and dry mash used. More than one boy received kindly but pointed criticism of his methods when reports showed poor egg production. At the close of the club year the West Hartford club had made a profit of $3.92 a hen, while the Goshen club did even better, with a profit of $4 a bird. Thus each club surpassed its goal by a wide margin.

Inspired by this success, the three Goshen boys have gone to college, taking their hens with them. The birds, all of which were raised last summer by club members, have been true to their trust, laying eggs more prized than the golden variety laid by the legendary goose.

Tests Shrimp Bran.

Cooperating with the Bureau of Fisheries, the Bureau of Animal Industry of the United States Department of Agriculture, is making tests of fishery by-products as hog feed. For several years these bureaus have been studying the use of fish meal as a protein feed for swine and the product has been found equal to high-grade tankage, of which the supply is inadequate. During the last fiscal year a new product known as shrimp bran was studied. The results of tests with it as compared with fish meal were favorable, the remainder of the ration being shelled corn and middlings.

Price Situation in Nutshell.

The level of prices paid producers of the United States for the principal crops increased about 4.5 per cent during December; in the last 10 years the price

level increased in like period about 2.2 per cent. On January 1, 1920, the index figure of prices was about 18.9 per cent higher than a year ago, 12.3 per cent higher than two years ago, and 84.7 per cent higher than the average of the last 10 years on January 1.

The prices of meat animals—hogs, cattle, sheep, and chickens—to producers of the United States decreased 2.9 per cent from November 15 to December 15; in the last nine years prices decreased in like period 0.7 per cent. On December 15 the index figure of prices for these meat animals was about 13.9 per cent lower than a year ago, 9.4 per cent lower than two years ago, and 44.2 per cent higher than the average of the last nine years on December 15.

These facts are shown by the figures of the Bureau of Crop Estimates, United States Department of Agriculture.

Active for Safer Milk.

Barre, Vt., a thriving municipality of about 15,000, is the first small city in the United States which requires dairymen furnishing it with milk to place their herds under Federal-State supervision for the eradication of tuberculosis. The result has been accomplished by close and persistent cooperation on the part of the mayor and other municipal authorities, the United States Department of Agriculture, the State commissioner of agriculture, the local board of health, and the dairymen themselves, and by the support of a local veterinarian.

Eradication of tuberculosis was begun in a thoroughly systematic manner. The regulations of the Federal Bureau of Animal Industry and of the State commissioner of agriculture were supplemented by a city ordinance. The city provided at its own expense a large barn, in which were assembled all small herds, scattered lots, and individual cows. The city also furnished necessary conveyances, and employed a man who devoted his time to notifying owners when to bring their cattle in for test, assigning them stalls as they came in, and keeping the cattle moving out promptly after tests were completed.

Two hundred and sixteen herds, composed of 2,107 individuals, were tested, and 379 reactors—17.9 per cent of the total—were found. Those reacting to the test were promptly shipped out and slaughtered under Federal inspection.

Among the larger cities whose milk is obtained entirely or chiefly from tuberculin-tested cattle that have passed Federal and State tests are Birmingham, Ala., and Washington, D. C. In addition, numerous others have ordinances requiring the tuberculin test applied under local supervision.

Steer Feeding Shows Results.

In a steer-feeding experiment conducted last year on the Government farm at Beltsville, Md., four lots of 2-year-old steers were fed. The purpose was to compare cottonseed meal and soaked velvet beans when used with and without the addition of shelled corn.

The addition of corn to a ration composed of corn silage, cottonseed meal, and wheat straw did not pay. The addition of corn to the ration of velvet beans and corn silage was profitable.

The lot receiving corn silage and soaked velvet beans with a small quantity of cottonseed meal as an appetizer produced the most economical gains and showed the greatest profit, even though the daily gains and the selling price of the cattle were lower than those of any of the other lots.

Live-Stock Associations Formed.

Fifty-nine live-stock breeders' associations, with a reported membership of 1,524, were organized during the last fiscal year with the help of United States Department of Agriculture extension specialists. In addition numerous calf clubs were organized among the boys and girls. Much of the work is being done in regions where the beef-cattle industry is practically new.

One of the purposes of beef-cattle extension activities is to eliminate scrub bulls and replace them with pure breds of good quality. The Federal workers cooperate with the State agricultural colleges through their extension divisions and particularly with county agents.

Object Lesson in TB. Control.

The District of Columbia is an excellent example showing that bovine tuberculosis is vulnerable to a definite campaign of eradication. The report of the Chief of the Bureau of Animal Industry, United States Department of Agriculture, gives the following striking percentages: In 1907 tuberculin testing in the District was undertaken and more than 18 per cent of the cattle were found to be tuberculous. Tests made in 1919 on all cattle in the District showed a percentage of only 0.63 of 1 per cent affected. This is lower than any previous year and the disposal of the last reactors makes the District practically a tuberculosis-free area.

Progress in Morgan Horses.

That the breeding of Morgan horses at the Morgan Horse Farm of the United States Department of Agriculture is making excellent progress is shown by a report of the Bureau of Animal Industry. The farm is located at Middlebury, Vt. At the end of the last fiscal year there were on hand 9 mature stallions, 11 young stallions, 30 mares and fillies, and 7 geldings (including 3 draft work geldings), a total of 57 animals.

A test in feeding weanling colts all the grain and hay they would eat has given excellent results in growth and development without harmful effects. The average daily feed consumed by the colts in this test was: Oats, 8.52 pounds; bran, 3.39 pounds; alfalfa, 3.25 pounds; timothy, 4.91 pounds.

Goat Flock Graded Up.

Saanen and Toggenburg blood predominate in the flock of milk goats used for experimental purposes by the Bureau of Animal Industry, United States Department of Agriculture, at its farm at Beltsville, Md. A report of the bureau shows that 12 does are being milked, and that the flock of female yearlings and kids amounts to 20 head, most of which have either seven-eighths or fifteen-sixteenths Saanen or Toggenburg blood. Lower-grade animals of the earlier crosses have been removed from the flock.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended January 31, 1920:

Back-Yard Poultry Keeping. Farmers' Bulletin 889.

Dusting Machinery for Cotton Boll Weevil Control. Farmers' Bulletin 1098.

A Chemical Study of the Ripening and Pickling of California Olives. Department Bulletin 803.

The Broad-Bean Weevil. (Professional Paper.) Department Bulletin 807.

Rural Community Buildings in the United States. Department Bulletin 825.

Care of Baby Chicks. Department Circular 14.

Suggestions for a State Law Providing for the Organization of Farmers' Mutual Fire Insurance Companies. Department Circular 77.

Tropical Fowl Mite in the United States. Department Circular 79.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention, make your request *definite* by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

Southern States Making More Butter; Better Cows and Better Feeding Noted

The creamery industry has made substantial gains in nearly every State in the South during the past year, especially in Mississippi and Tennessee, according to creamery extension specialists of the United States Department of Agriculture.

Mississippi now has 27 creameries in operation, and it was announced at a recent meeting of the Mississippi Creamerymen's Association that this number would soon be increased to 35. Production of butter increased 30 per cent during 1919, and already a steady and growing market has been created for Mississippi dairy products in the larger cities of the South. In these creameries the manufacturing methods and sanitation are good, says an extension specialist, and the constant improvement in the quality of cream obtained through cooperative efforts has made it possible to produce a good grade of butter and secure a high price for it.

The coming of the creamery has also done much to improve the dairy cattle and methods of feeding in that State. Dairymen have learned that the good cows, well fed, are the ones that bring in the big cream checks, and they have therefore welcomed the bull associations and cow-testing associations as a means of improving their cattle.

Tennessee has made the greatest gain in creamery development during the past year of any Southern State, and several modern plants have been completed recently. At a meeting of creamery managers and butter makers of local creameries held in January at Nashville, Tenn., the creamery association was reorganized and plans were made to provide a market for surplus butter made during flush seasons by means of advertising and by shipping cooperatively to markets in eastern cities. At this meeting it was reported that three of the local creameries each had produced more than half a million pounds of butter during the year, a performance which was thought to be impossible two or three years ago.

Record in Butter Making

Figures on butter production for various creameries show that from 25 to 100 per cent more butter was made last year than during any previous year, and creamerymen are naturally very enthusiastic for the future. The outlook for dairying in Tennessee is unusually bright. The climate is favorable for dairy cows, and abundance of feed can be grown, and the grass for pastures is excellent.

FARMERS HELPED BY GRAIN GRADING

Grain farmers and shippers of the Pacific Northwest feel that they are better off in doing business under the Federal grading system than under any previous system of grain inspection, according to opinions expressed at a meeting held in connection with the farmers' short course of the Oregon Agricultural College. The men who attended the meeting said they were in favor of keeping the grades at a high standard, thereby giving a premium to the farmers raising a high quality of wheat.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, EDWIN T. MEREDITH.
Executive and administrative head of the department.

Assistant Secretary, JAMES R. RIGGS.
Assists in administrative duties of the Department.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, H. C. TAYLOR, *Chief*.
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief*.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester*.
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief*.
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief*.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief*.
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief*.
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief*.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief*.
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief*.
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, THOS. H. MACDONALD, *Chief*.
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director*.
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, GEORGE LIVINGSTON, *Chief*.
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Livingston, as chief of the bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licenses, operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, EDWY B. REID, *Chief*.
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman*.
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman*.
Assists in the enforcement of the Insecticide Act of 1910.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1920

D. E. Earle.
1 P-Z

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VII FEBRUARY 18, 1920 No. 29

LAW SUGGESTED AS GUIDE IN FARMERS' FIRE INSURANCE

Many States Make No Provision For Such Companies

Department Circular May Be Used to Advantage by Persons Promoting Legislation Relating to This Question

Though the value of farmers' mutual fire insurance companies is demonstrated conclusively by the record of approximately 2,000 such organizations in the United States, there are many States whose laws make no suitable provision for forming and operating such companies. Consequently at the request of various representatives of farm interests, the United States Department of Agriculture, in cooperation with the National Association of Mutual Insurance Companies, has prepared suggestions for a State law providing for the organization of farmers' mutual fire insurance companies.

These suggestions have just been issued in the form of a department circular, which can be used to advantage by anyone concerned in promoting legislation relating to this question. In some cases, of course, the provisions may need modification to meet constitutional requirements. In general, the suggested law is designed to make it easy for 20 or more qualified individuals to organize a farmers' mutual fire insurance company. At the same time provisions are included which adequately safeguard the financial integrity of such companies.

Low Cost Indicated

Figures compiled by the Office of Farm Management, United States Department of Agriculture, show that the companies now in existence carry a total insurance exceeding $6,000,000,000 on property valued at over $7,500,000,000, which is more than two-fifths of the value of all insurable farm property in the 48 States. In a number of States where this form of protection has been highly developed, the average cost falls below one-half the rates quoted by commercial concerns or the so-called bureau rates.

Wind Storms Not Covered

Since about 15 per cent of all the farmers' mutuals in the country write policies that give protection against windstorms, as well as fire and lightning, the average rate for the country as a whole is higher than it otherwise would be.

THE THIRD TRY WINS

To have a catastrophe overtake your enterprise twice and then, undismayed by failure, to try a third time, requires pluck of a rather unusual quality. It is the kind that Theodore Tholke, a club boy living in Douglas County, Nev., possesses.

Last spring this boy joined one of the poultry clubs under the supervision of the United States Department of Agriculture and the State colleges and purchased 300 baby chicks. Soon afterward an electric storm passed over his home and all but 19 of the chicks were killed. Theodore viewed the devastation the storm had wrought, straightened his shoulders and went out and bought 150 setting eggs. But luck was against him again. Scarcely had he got the eggs under hens before a waterspout caused the irrigation ditch to overflow. The resulting flood washed his eggs and nests away.

Many would have given up in despair at this point, but not Theodore. Still determined to raise chickens, he obtained more eggs and finally succeeded in raising 150 chicks. On these he made a net return of $142 and was awarded the State championship of Nevada.

Notwithstanding this fact, the average for the country as a whole is only 26 cents per $100. The writing of windstorm insurance is not permitted to local mutuals under the suggested law, however, since only companies that operate over wide areas can assume this risk with safety.

Copies of the new circular, No. 77, can be had by addressing the United States Department of Agriculture, Washington, D. C.

160226°—20

MANY MAPLE TREES OFFER GOOD RETURNS FOR TAPPING

Opportunities to Get Sugar Overlooked in Score of States

Industry Not Confined to New England and New York, as Many People Believe; Tapping Methods Given

Many thousands of American farmers throughout a region comprising more than a score of States are overlooking opportunities to secure delicious maple sugar and sirup for home use, as well as for sale, at very little cost.

This statement, of peculiar interest because of the present sugar shortage, and the approach of "sugar weather," is based on data compiled by experts of the United States Department of Agriculture who have made a special study of the maple-sugar industry. While Americans commonly think of this industry as being confined largely to circumscribed areas in New England and New York, there are, as a matter of fact, many potential "sugar bushes" throughout eastern and northeastern United States; in other words, throughout a region extending south to include North Carolina and Tennessee and west to include northern Missouri, Iowa, and Minnesota. There are also a considerable number of maple trees of a sugar-yielding species in Washington and Oregon.

Process Not Complicated

While some experience is necessary to boil the sap down to sirup and sugar properly, the process is not complicated and may be learned readily. A United States Department of Agriculture bulletin, "Production of Maple Sirup and Sugar," gives the necessary information, and will be sent free to any person addressing the Department at Washington.

A clump of 10 to 15 trees usually will yield enough sirup for family use to make tapping worth while, and in many cases will afford a surplus which can be sold at a remunerative price. The flow

of sap depends upon the age, condition, and habit of growth of the tree, also upon the character of the weather and condition of the soil during the sap-flowing season. In a good season a tree 15 inches in diameter will yield sufficient sap to make from 1 to 6 quarts of sirup, which in turn can be concentrated into 2 to 10 pounds of sugar. Larger trees under the same conditions will produce correspondingly large yields of sirup and sugar. All hard maple trees, 8 inches or more in diameter, may be safely and profitably tapped for sirup and sugar production.

Cutting Sugar Trees for Lumber

Recently an investigator of the United States Department of Agriculture in North Carolina discovered many groves of sugar maples that were not being utilized for sirup and sugar production. One of these groves is probably larger than any now to be found in New England. The owners, not being aware of the value of these trees from the maple-sugar standpoint, had begun cutting them down for lumber at an average return of less than $1 a tree. At the suggestion of the Federal representative the groves were spared further cutting in many instances and the owners last year began tapping the trees and making sirup that sold for $4 a gallon. This revelation of the potential value of these groves has induced the owners to plan more extensive operations for this coming spring, so that instead of destroying the groves they will become a source of permanent and larger income. It is expected that the flow of sap will be even more satisfactory than last year, since the warm weather of last winter was not favorable to producing the best grade nor the highest yield of sugar and sirup.

The maple sirup and sugar industry is distinctively American and offers good commercial opportunities for those who engage in it systematically. No countries besides the United States and Canada produce this much-prized product on a commercial scale, which is at once a delicacy and a highly nutritious article of diet. The demand for both sirup and sugar is far beyond the supply.

Because the sugar content of the sap varies from time to time, uniformity of quality can not be secured throughout a season. Warm days and cool nights are essential to a satisfactory flow, and the sugar content may vary considerably from day to day. However, this is not a feature that materially affects the success of one's operations.

Tapping of sugar trees if done properly in no way injures the tree. Trees have been tapped for more than 100 years and are still in good condition.

It is a good policy to tap early in the season to obtain the earlier runs, which are generally the sweetest, and therefore the best producers. Makers have lost half and even more of their crops by not being prepared for the first run. In general, it may be said that the season is ready to open during the first or middle of February in the southern sections and later in the northern regions when days are becoming warm—when the temperature goes above freezing during the day and at night below freezing. If the days are very bright, warm, and sunny the sap will start with a rush but soon slacken, or if a high wind starts the flow is checked. Protracted warm weather or a heavy freeze with nights and days of even temperature stops the flow altogether, to start again when weather conditions are right.

Methods of Tapping

Considerable difference of opinion exists as to the best method of tapping a tree. A thirteen thirty-seconds of an inch (13/32-inch) bit is often used. Its direction should be slightly upward into the tree, the slant allowing the hole to drain readily. With an ordinary tree the hole should not be over 1½ to 2 inches deep at best.

The equipment required for sirup and sugar making does not necessarily represent a large outlay. A number of sap spouts, either wooden or metal, are needed. The sirup is usually gathered in buckets and, if the grove covers a considerable area, a wagon or sled is used to carry barrels into which the buckets are emptied. For a small grove a big iron kettle, such as most farmers possess, is ample for boiling the sap over an outdoor fire. For large production a more elaborate equipment, such as a pair of pans set over a brick framework of various patent evaporators may be employed. Where a sirup is made as a side issue or in small quantities it is customary to make the extra concentration essential to producing sugar in pots over the kitchen stove, but where made on a large scale homemade or factory-made apparatus can be employed.

Commercial Possibilities

While the possibilities of immediate returns from maple trees now standing are of chief interest at this time, the United States Department of Agriculture experts call attention to the large commercial possibilities in maple-sirup production which could be developed in a comparatively few years by extensive planting. There are large numbers of tracts now unfruitful and considered almost worthless but well suited to growing maple trees. These tracts are to be found throughout the regions referred to above, and could be planted to sugar maples at small cost.

MAINE CLUB BOYS AND GIRLS INCREASE SWEET-CORN YIELD

Maine is noted for its excellent sweet corn, the principal crop grown by many farmers near the canning factories. Sweet-corn growing is a popular project with the Maine boys and girls in the agricultural clubs organized by the United States Department of Agriculture and the State college. The Maine canners' association, four years ago, awoke to the economic value, both present and future, of the young people's work and offered prizes totalling $2,525 to the boys and girls who made the best records in sweet-corn growing.

In the fall of that year 500 club boys and girls, with their local leaders, assembled at Portland for a big meeting. There was on exhibit 3,800 ears, the largest exhibit of sweet corn ever made in America, and it was all grown by the club members. That meeting gave an impetus to the sweet-corn project and the Maine canners' association has given the same amount of prizes each year since.

The economic returns from the sweet-corn club work is interesting. In 1919, 140,898.9 pounds of cut corn was grown by Maine club boys and girls. Furthermore, the yield per acre has been increased through the work of the clubs. In 1916 the average yield per acre of sweet corn in Maine was 2,000 pounds of cut corn per acre. In 1919, William L. Russel, of Cumberland County, a club boy, raised 1,917 pounds of sweet corn on one-quarter acre. Other club members secured yields larger than the average. Mr. Russel was sweet-corn champion of Maine last year and received the $100 scholarship to the State agricultural college.

PERCENTAGES IN RICE PRODUCTION

While Honduras rice is 44 per cent of the rice production of Arkansas, it is 11 per cent in Texas, 20 per cent in Louisiana, and only an infinitesimal fraction of the crop in California. In the last named State the Japan variety constitutes most of the crop, but in other States this variety is little sown. The Blue Rose variety is 49 per cent of the crop in Arkansas, 80 per cent in Texas, and 75 per cent in Louisiana.

MORE APPLE STORAGE NEEDED FOR YIELDS OF NORTHWEST

Increased Production and Lack of Cars Make Situation Acute

Department Sends Specialist to Give Aid to Growers; Houses Must Be Built to Repel Both Heat and Cold

If big losses are to be avoided in the marketing of the northwestern apple crop, growers will be forced to give greater attention to equipping their properties with up-to-date storage houses than they have heretofore, says the Bureau of Markets, United States Department of Agriculture.

Because of increased production and an acute shortage of refrigerator cars last season, growers in the Northwest were unable to move their apples to market and thousands of boxes of fruit were caught unprotected in the orchards by an early freeze, while other fruit remained on the trees and was frozen because there was no place to store it.

Since 1900 the production of apples in the Northwest has increased enormously, until last year Washington, Oregon, and Idaho, with the help of Montana and Colorado, produced over one-quarter of the total crop of the United States, and with new acreage coming into bearing it is likely that the Northwest in a few years will be producing a much greater part of the country's total crop.

Can Not Move Crop During Harvest

Under present conditions it is impossible for the railroads to move the crop to market during the harvest season. And the growers, with existing scarcity of labor, can not grade, pack, and prepare the crop for market in a period of two or three months. This situation has brought home to growers the necessity of providing better storage facilities in the producing districts.

In response to many inquiries for information on storage houses, the Bureau of Markets, United States Department of Agriculture, has sent a specialist to the Northwest to assist growers and shippers in the planning and construction of common storage houses. The bureau points out that it is not enough to build a storage house, but that it must be built right, or the apples will not keep. Investigations have shown that much money has been wasted through improper construction of houses.

Essentials of Good Storage House

"Too often the grower builds by rule of thumb," says the bureau, "and does not consider that a storage house must be built like a heat-retaining bottle—to keep heat in when the weather is cold and out when it is warm. Houses must be well insulated and ventilated. Almost invariably apple storages fall short of actual requirements in ventilation. Small ventilators are used when large ones could be supplied at little more or no more expense, and the large ventilators would add 50 per cent to the efficiency of the storage house."

The special bureau representative now in the Northwest is supplied with working drawings of storage houses that have been tested during the past five years, and is prepared to assist personally growers who expect to build during the spring and summer. His headquarters will be at the branch office of the Bureau of Markets, Yakima, Wash.

SPINACH LOSSES REDUCED BY CARE WITH SHIPMENTS

Losses in spinach shipments can be greatly reduced by careful handling in harvesting and packing and by effective refrigeration in transit, according to specialists in the Bureau of Markets, United States Department of Agriculture, who have been investigating the subject.

Reports show that some of the principal spinach shipping sections of the country are suffering considerable loss from decay and deterioration in transit caused by the development of slimy soft rot. This decay develops rapidly in transit when temperature conditions are favorable, say the bureau men. It starts at places where the leaves have been bruised or wounded and it very frequently follows attacks of blight or other field diseases. Other causes of deterioration in transit are yellowing and wilting of the leaves. Prompt handling and shipment at a low temperature largely reduce losses from these causes.

That shipments of spinach arrive in better condition when crushed ice is used in each package than without the ice is shown by test shipments made from Austin, Tex., by the Bureau of Markets during the last two years. Where ice was used in these shipments, practically no soft rot had developed when the spinach was removed from the car, while comparable shipments without ice had developed 8.9 per cent. Three days later the iced spinach had developed only 11.9 per cent of soft rot while that shipped without ice had developed 26.8 per cent. These shipments were made in freight or express refrigerator cars, the bunkers of which were iced in the regular way.

When barrels are used the investigators found that several layers of crushed ice scattered through the barrel are needed, a large layer being placed on top of the spinach next to the barrel head. Holes bored in the bottom of the barrel provide drainage. Shipments in baskets or crates carry best with a layer of crushed ice in the center of the container and another layer on top of the spinach just under the cover.

Test shipments made to determine the effect of washing spinach before shipment showed that washing has an unfavorable effect on its keeping quality. On removal from the car at destination, unwashed spinach showed practically no soft rot while washed spinach showed 5.5 per cent. Three days later the washed spinach had developed 24.8 per cent while the unwashed had developed only 5.7 per cent.

HOW IRRIGATION HELPS YIELDS

What irrigation does for yield per acre is expressed in the comparative results of an investigation made by the Colorado Crop Reporting Service, in which the Secretary of the State Board of Agriculture cooperates with the Bureau of Crop Estimates of the United States Department of Agriculture. Corn production in 1919 in that State on irrigated land was 30.6 bushels per acre and on nonirrigated land 15.2 bushels; winter wheat, 24.7 and 9.3 bushels, respectively; spring wheat, 22.8 and 7.4 bushels; oats, 37.0 and 15.2 bushels; barley, 30.8 and 12.5 bushels; rye, 15.5 and 8.6 bushels; and potatoes, 155 and 34 bushels.

TWO WAYS TO COOK RICE

Some people like to cook rice with a little water in a double boiler, so that none of the food material is lost. If rice is cooked in this way use only 2½ or 3 cups of water to 1 cup of rice. Have the water boiling in the upper part of the double boiler, add a teaspoon of salt and a cup of well-washed rice. Cover and allow to cook over water until the grains are soft.

When rice is cooked in this way the product is more moist than when cooked southern style, so when it is used in scalloped dishes or in bread less liquid is required.

Where plenty of skim milk is available, the home economics kitchen of the United States Department of Agriculture advocates, as a variation the following method of cooking rice: Use 4 or 4½ cups milk to 1 cup of rice. Add the rice to the hot salted milk and cook until the milk is absorbed and the grains soft. The milk greatly increases the food value of the dish.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

IDLE MONEY WORSE THAN IDLE HANDS

The farmer is entitled to such rest as he can obtain between harvest and seed time, but his money should never be idle. Put your cash balance into Treasury Savings Certificates in $100 and $1,000 denominations. Your postmaster or banker will supply or obtain them for you. Each certificate is registered, and therefore loss proof. The certificates will be cashed by the Treasury Department immediately upon receipt at cost plus 3 per cent interest. (Can not be cashed before second calendar month after date of purchase.)

KEEP YOUR MONEY SAFE.
MAKE IT WORK FOR YOU.

MAY QUARANTINE THE WORLD IN WAR ON CORN BORER

To determine whether or not it is advisable to quarantine all foreign countries to prevent further entrance of the European corn borer into the United States, a hearing called by the Secretary of Agriculture was held in the offices of the Federal Horticultural Board on February 12. The findings of the board will be announced shortly. If quarantine is found advisable, it will apply to stalks and ears of Indian corn, broom corn, sweet sorghums, grain sorghums, Sudan grass, Johnson grass, sugar cane, including the Japanese varieties, pearl millet, Napier grass, teosinte and Job's tears. It will not apply to shelled corn or to the thrashed seeds of the other plants. It will apply to any parts of those plants in the raw or unmanufactured state that may be used for packing or similar purposes.

Authority is conferred by the plant quarantine act to prohibit entirely or to restrict the importation of any plants. The European corn borer is supposed to have entered the United States in shipments of broom corn and has obtained a limited foothold in the eastern part of the country. Large sums of money are being spent in an effort to control it. The enormous value of corn, the premier crop of the Nation, makes it necessary to take all possible precaurions to prevent further infestation.

CLUB GIRL REAPS DOLLARS FROM HER TOMATO PLANTS

A 16-year-old Oklahoma girl made $600 on the tomatoes in her garden last season. This is her second year of work in a garden club of the type supervised by the Department of Agriculture and the State college. This club girl attributes her marked success to following out to the letter the instructions which were given her by her club leader. An early hot bed and an excellent early market undoubtedly were the secrets of her large returns. She had tomatoes on the market long before any one else. For the first 800 pounds that she marketed she received 15 cents a pound.

The Oklahoma agricultural college offers scholarships to the boys and girls of the State who do exceptionally good club work. This girl hopes for one of these scholarships but whether she receives one or not, she is going to college. Her club money of this year will start her and she expects to make more through the same medium to keep her there for four years.

GARLIC FLAVOR IN MILK—HOW TO PREVENT IT

Dairymen and creamerymen in many States are troubled every spring by garlic or onion flavor in the milk. This is due to the cows feeding on garlic or wild onion, one of the first plants to start in the pasture in the spring. The trouble from garlic is not likely to last very long, as this weed is soon cropped off and the grass becomes plentiful enough for the cattle to feed on it in preference to the onion.

Garlic flavor in milk can be removed by heating the milk to 145° F. and forcing air through it at this temperature for 30 to 60 minutes, according to Farmers' Bulletin 608 of the United States Department of Agriculture. As this method requires a certain amount of equipment, it is much more satisfactory for the average dairyman to keep the odor out of milk by a few simple precautions in herd management.

There are two ways of protecting the milk from garlic flavor. First, prevent the cows from obtaining garlic; and second, manage the herd on garlic pasture, so that there will be the least possible chance of getting the flavor in the milk.

Often the garlic is found only in one patch in the pasture, and this can be temporarily fenced off and pastured with other animals not producing milk.

Where garlic is scattered all over the field it will be impossible to keep the cows away from it, but by removing them to some other field three or four hours before each milking the flavor will be reduced to a minimum. The odor in milk is strongest from cows which have just eaten garlic, and the odor is reduced as the time between the eating of garlic and milking is increased.

In case no garlic-free pasture is available, it would be advisable to drive the cattle to the barnyard three or four hours before milking and feed them on hay and silage. As the season for garlic trouble is short, this should not cause much inconvenience.

The best plan for avoiding trouble from this weed on the dairy farm is to kill it out completely. This can be done with little trouble, and those interested can obtain information on the subject by writing to the United States Department of Agriculture for Farmers' Bulletin 610, "Wild Onion, Method of Eradication."

PEANUTS ANSWER DEMAND

The peanut crop has responded to the increasing commercial and industrial demands until in 1918 about six-sevenths of the production left the producers' farms. The crop was at the high-water mark of 46,000,000 bushels and, of this, 68 per cent was sold for various uses, 13 per cent was sold for local uses, 4 per cent was sold for food for local use, 6 per cent was fed to live stock without the vines on the farms of the producers, and 9 per cent was fed to live stock with the vines. Many details of information relating to this subject were published in the Monthly Crop Reporter for January, 1920.

AIR CURRENTS AND APPLE SCALD

Omission of a period caused the WEEKLY NEWS LETTER of January 28 to say in an item headed, "Preventive Found for Apple Scald," that "boxed apples exposed to a continuous air current of 88 miles an hour were practically free from scald." The figure should have been .88, or eighty-eight hundredths of a mile.

France made more than one-half of the usual prewar crops of rye, wheat, oats, and barley in 1919, excluding the invaded territory for 1919.

Future Seems Bright for Oats Raising; More Acreage Despite Popular Belief

Here is an interesting bit of farming logic that looks sound, but the conclusion reached is absolutely false:

"Oats," the argument runs, "are raised principally as feed for horses and mules.

"The enormous increase in the number of automobiles and trucks in the country is making the horse and mule a back number.

"Therefore, with fewer horses there is need for less oats, so why not plant less acreage to oats or stop planting this crop altogether?"

The fallacy is twofold. The number of horses and mules on farms, if decreasing, is doing so at a rate so slow as to have little or no effect on the oat crop. Furthermore, statistics show that American farmers are not cutting down the total oat acreage but are actually increasing it.

Oats Proportion Grows

This is not all. The proportion of oats to corn and wheat has increased steadily in the past generation. Half a century ago in every 100 acres of improved farm land there was an average of less than five acres sown to wheat. In each succeeding decade of the last 50 years the average has been increasing. During the past 10 years it reached an average of almost 8 acres of oats out of every 100 acres of improved farm land. In contrast to this increase in the last 50 years, the number of acres devoted to wheat in each 100 acres of improved farm land has not varied much from 11, and corn has not varied greatly from 20 acres.

Let no farmer think that oats is becoming an undesirable or unpopular crop. Experts in the United States Department of Agriculture who have made a special study of the oat crop, advocate extensive sowings, though, of course, it does not follow that this grain will pay in all sections, any more than that dairying is profitable everywhere. Nevertheless, a great number of American farmers, particularly in the corn belt, are justified in making extensive sowings of oats each year. It must be borne in mind that the man who is successful in growing oats, grows this crop as one in a rotation series. It is not his principal farm product, but is one of several important enterprises.

It is occasionally pointed out that the oat crop actually gives less returns than corn, for instance, and so the wisdom of growing oats when corn can be grown is questioned. The answer is that a liberal acreage of oats can be provided without materially reducing the corn acreage, as oats do not compete seriously with the labor necessary to raising corn. The oat crop is sown early in the spring before it is desirable to prepare the fields for corn, and when once sown does not call for further labor until harvest. On the other hand, the number of acres of corn which can be grown depends largely on how much land can be plowed and cultivated by the farmer.

Most Important of Small Grains

Farmers in sections where corn matures too late to make the sowing of wheat after corn cutting a safe venture, have learned that oats is the most important of the small-grain crops. This applies particularly to Iowa and adjoining territory, namely, northern Illinois, southern Wisconsin, eastern Nebraska, southeastern South Dakota, and southern Minnesota. Frequently rotation as practiced in the corn belt covers a 5-year period with two crops of corn, one of a small grain, and two of timothy and clover. Where this practice prevails it is logical that oats be used as the transition crop from corn to the grasses.

If oats is to be made the important crop which experts contend it should be, the question naturally arises as to how the best returns can be secured. Ordinarily the most profitable way is to sow oats on disked corn land. If the land was well plowed last year and is fairly free from weeds it is unnecessary to plow it again for oats. If corn stalks are still standing in the field selected, they should be broken down and then cut into short lengths with a disk harrow so that they will not interfere with the drill or with harvesting machinery.

Sowing should be done as soon as the land can be gotten into proper condition in the spring. Delay may seriously reduce the harvest returns. The practice of seeding broadcast is much less satisfactory than sowing with a drill, since by the former method uneven distribution results and many kernels are buried too deep.

Good Seed of First Importance

It is of the utmost importance that good seed be used. If last year's crop was of fair quality it can be used for seed after being cleaned and graded. It is decidedly preferable to buy new seed if the latter is at all likely to prove poorly adapted to local conditions. In cleaning and grading the oats one-third to one-half of the total bulk should be removed, leaving only the heaviest and plumpest kernels for sowing. Usually it will be advisable to treat the seed for smut. This may be omitted, however, if last year's crop was practically free from it and if the separator with which it was thrashed was also free from smut spores. The formaldehyde treatment is well known and it is only necessary to remind the farmer that if the seed is treated during cold weather it should not be allowed to freeze while it is wet. As the cost of the formaldehyde treatment is so small, many prefer to take no chances and so treat the seed every year. If it is sown before it is dry, one must make allowance for its swelling in setting the drill, otherwise the stand will not be sufficiently dense.

Experts recommend that between 2 and 3 bushels of seed be used to the acre. A larger allotment than this will not often result in material increase. In some cases on land free from weeds as little as 1½ bushels per acre has produced satisfactory results. The yield of straw is usually coarser and greater from thin than from heavier seeding, and the danger from lodging is increased.

The varieties recommended for sowing in the corn belt include oats of the Sixty-Day or Kherson type, especially some of the pure-line selections, such as have been put out by various experiment stations. These include the Iowar and Albion (Iowa No. 103) from the Iowa station, and Nebraska No. 21, from Nebraska. There is nothing better than the Silvermine for those who prefer a larger kernel, which matures later. This applies particularly to northern Illinois, northern Iowa, Wisconsin and Minnesota. Here also the Sixty-Day type is decidedly popular because of its large yields. In the cooler sections larger and later varieties, such as Swedish Select, Big-Four, Welcome, Golden Rain, and Victory, can be grown advantageously.

Cotton seed of the crop of 1919 was worth $337,000,000 to producers, as estimated by the Bureau of Crop Estimates, United States Department of Agriculture. This is an advance of 42 per cent over the value of the production of 1913, the year next preceding the World War. It is more than the value of the lint production for every year before 1902, except 1900.

How to Make Fish Scent to Attract Wolves and Other Carnivorous Animals

An effective fish scent for use in trapping wolves, coyotes, wild cats, and other carnivorous animals may be prepared in the following way, according to the Biological Survey, United States Department of Agriculture:

Any kind of fish may be used, but such oily varieties as sturgeon, eels, trout, suckers, and carp are preferred. The flesh should be ground in a sausage mill, placed in strong tin or iron cans, and left in a warm place to decompose thoroughly. Each can must be provided with a small vent to allow the escape of gas, otherwise there is danger of explosion, but the aperture must be screened with a fold of cloth to prevent flies depositing eggs, as the scent seems to lose much of its quality if a considerable number of maggots develop.

Time Gives Strength

This scent may be used within three days after it is prepared, but it is more lasting and penetrating after a lapse of 30 days.

Fish scent alone has been used with excellent results, but several modifications are highly recommended. Using the decomposed fish as a basis, mice, beaver castors, musk glands from minks, weasels, muskrats, and the bladders of coyotes and bobcats may be added. Oil gives body to the scent and to a certain extent prevents freezing in zero weather. If the mixture appears too thin, glycerin, brains, fish oil, butter fat, or such other animal oils as fat from woodchucks and ground squirrels may be added.

Good System for Hunters

An excellent system for a hunter to follow is to commence with a quantity of ground fish placed in large iron containers, similar to a milk can. As the original lot is used on the trap line, it should be replenished by adding more fresh fish and others of the ingredients mentioned. The addition from time to time of new material seems to improve the quality of the scent mixture.

HOW FOREIGN COMPETITION AFFECTS DAIRY INDUSTRY

To meet foreign competition, dairy farmers of the United States must be able to produce a better quality of product and produce and market it more economically and more efficiently, according to specialists in the Bureau of Markets, United States Department of Agriculture.

Arrivals of shipments of Danish butter are already affecting prices on the New York City market. Argentina is producing nearly three times the amount of butter and cheese consumed and some of the surplus may be expected to come to this country, or compete with our products in foreign countries. Before the war Siberia was rapidly extending its dairy industry and when conditions become settled in that country it may be expected to come back as a factor in the world's market. Recently there have been signs of interest in dairying in South Africa, and the industry as developed in New Zealand and Australia must be reckoned with.

If the dairy products manufactured in the United States are of a better quality than those from other countries they need not fear competition. Canada's cheese industry illustrates this. A strict system of Government supervision in the training of cheese makers, in the operating of the factories and in the grading, marketing, and exporting of the product, exists there. This has tended toward an improvement in the quality of Canadian cheese until it ranks with the finest on the English markets.

The dairy industry in Argentina has grown rapidly since the beginning of the war. Before the war butter exports from that country totaled 3,262 tons a year; in 1918 they were five times that. Cheese exports were far exceeded by the imports in 1913. Now the conditions are reversed—over 6,000 tons of cheese being exported in 1918.

To-day most of these exports are going to European markets, but should conditions become favorable it may be expected that some of them will come to this country. The Bureau of Markets warns dairymen to be prepared to meet this competition.

CARPET GRASS EFFICIENT AS A FORMER OF SOD

Carpet grass is a perennial, creeping grass which forms a dense, close turf. The United States Department of Agriculture recommends this turfing grass as probably the best for pasture use in the Coastal Plain section of the United States, from North Carolina to Texas. It is especially adapted to sandy or sandy loam soil, particularly where ample moisture is available throughout the year.

In the areas where carpet grass is known, it seems to surpass all other perennial grasses for use in permanent pastures. It continues growing throughout most of the year, being damaged only by heavy frost or severe drought. Even after heavy frosts have seared and browned the leaves, the cattle can still continue to graze on the grass. Carpet grass, therefore, gives considerable promise as a winter pasture plant. In order to maintain pastures in the best condition heavy grazing is necessary, the alternate grazing of two fields being preferable to the continuous pasturage of a single tract.

Carpet grass as a rule is raised as an exclusive crop, although occasionally it is grown in combination with lespedeza, or with bur clover, and with Augusta vetch. For maximum development carpet grass requires abundant heat and moisture, and where these conditions are satisfied it may be grazed successfully from March to December, and in the extreme south even longer.

This grass is well established throughout the area in which it prospers. Wherever sowing is necessary it is a simple matter to mow the grass after the seed has matured and to scatter the straw with the attached seed over the soil where it is desired to establish the grass. Under favorable conditions, especially where protected against fire, carpet grass is almost certain to occupy the land, provided the grazing is heavy enough to keep down weeds and taller grasses.

Carpet grass can scarcely be considered a cultivated grass as yet, and commercial seed until now has seldom been obtainable. No experimental data are available as to the feeding value of carpet grass as compared with other pasture grasses, but experience shows clearly that it is highly palatable, and doubtless very nutritious.

BALANCED HOG RATION PAYS

A Kentucky farmer, in cooperation with the swine specialist and the county agent, started a hog-feeding demonstration on his farm last June. It produced convincing results. Feeding a balanced ration according to instructions, he produced pork at a cost of 13 cents a pound, while the lot fed by the method commonly followed in that section of Kentucky cost 39 cents a pound of gain.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Fewer Farm Animals Last Year.

A slight increase in the number of milch cows and mules and a moderate decrease in the number of other cattle (calves, steers, bulls, and cows not for milk), horses, sheep, and swine are the outstanding features of a survey of live stock on farms and ranges of the United States on January 1, as compared with a year ago, made by the Bureau of Crop Estimates, United States Department of Agriculture.

Milch cows have increased about 272,000 head, or 1.2 per cent; mules increased 41,000 head, or 0.8 per cent; "other" cattle (as designated above) decreased 700,000 head, or 1.6 per cent; horses decreased 373,000 head, or 1.7 per cent; sheep decreased 251,000 head, or 0.5 per cent; and swine decreased 1,675,000 head, or 2.2 per cent.

The estimated number of animals on farms and ranges January 1 are 21,109,000 horses, 4,995,000 mules, 23,747,000 milch cows, 44,385,000 other cattle, 48,615,000 sheep, and 72,909,000 hogs. The total of all animals is 215,760,000, which is 2,686,000 head, or 1.2 per cent, less than a year ago.

The total value of all farm animals on January 1 was about $8,561,000,000, which is a shrinkage of $266,000,000, or 3 per cent, compared with a year ago. It is an interesting observation that mules and milch cows which increased in numbers also increased in value per head; whereas all other classes of animals decreased in value per head, as well as in total numbers.

Makes Money with Canning Outfit.

Two boilers fitted with trays, two tubs, two wire baskets, two paring knives, a small dipper, a measuring cup, a kettle, and a can sealer comprised the equipment that a young Washington schoolteacher used to can enough peaches to clear $600 in two weeks last fall.

One of the things which the home demonstration agents, sent out by the United States Department of Agriculture and the State colleges, teach is the use of inexpensive equipment where it impossible or inadvisable to buy expensive utensils. In the Yakima Valley, Washington, there is a high percentage of waste peaches in the orchards that supply the commercial canneries. It is impossible for them to use tree-ripened Alberta and Slappa peaches because they will not stand up well under the high pressure used in processing. A young school-teacher, living in the vicinity of these orchards, and her aunt decided, with the advice of the home demonstration agent of that county, to utilize these tree-ripened peaches. With a stove made of bricks and the above equipment they were able in two weeks to make a profit of $600. They found little sugar was necessary with the tree-ripened peaches. They also made 600 quarts of peach and pear conserve and 215 quarts of grape and apple jelly. Special recipes were worked out for the pear butter.

Fumigation Charge Reduced.

The fumigation of railway cars entering the United States from Mexico can be done at less cost than was originally thought and the United States Department of Agriculture, through the Federal Horticultural Board, has ordered a reduction of the fee from $5 to $4 a car. The fumigation, for the purpose of preventing the entry of the pink boll worm of cotton, is performed at the various border points of entry in houses especially constructed for the purpose. Fumigation was taken over by Federal agents October 1 last year. The effort was to make a charge for the service that would just cover the cost of chemicals and labor involved. Three months' experience has proved that the charge of $5 more than does this and the new ruling, effective February 1, gives to the shippers the benefit of the saving. Unused fumigation coupons previously bought at $5 will be redeemed at face value.

Opportunity in Sheep Raising.

Results of a farm sheep experiment reported by the United States Department of Agriculture show clearly the possibility of a profitable sheep-raising business upon eastern lands. At the Government farm, Beltsville, Md., a study is being made of specialized intensive sheep raising with complete reliance upon forage crops for summer pasturage.

In 1916 a 30-acre area did not produce forage enough to feed satisfactorily 44 Southdown ewes and 33 lambs. This field is now capable of furnishing sufficient summer feed for 100 ewes with their lambs. The improvement is due in part to the application of manures, lime, and phosphates, but chiefly to the fact that leguminous crops were largely used and all crops were fed upon the ground, the unused residues being plowed in. Under the system followed forage crops are seeded in rotation and the sheep are allowed such frequent changes of pasture as are necessary to prevent troubles from parasites.

Oregon Fights Rodents.

Typical of the work of the Biological Survey in western States is that which has been carried on in Oregon during the past year. A total of over 20,000 pounds of poisoned grain was spread on 150,000 acres of Government land by Biological Survey employees or by farmers and stockmen working under the direction of field assistants. In addition, 100 ounces of strychnine and 2,000 pounds of poisoned grain were furnished the county agent in Wallowa County. This was used in fighting squirrels as they began to gather from the public lands to the cultivated lands and was sent as temporary relief until the Government could undertake a more systematic campaign in that county. Seventeen counties joined in the cooperative campaign against ground squirrels led by Biological Survey men. Over 7,500 farmers took part in the work and treated 697,000 acres of their own lands, using 85,480 pounds of poisoned grain prepared under direction of the Biological Survey representatives and county agents.

The magnitude of the work remaining to be done in this State is indicated by the following facts: There are more than 32,000,000 acres of public land in Oregon, of which approximately 13,000,000 acres are in forest reserves and 15,000,000 are on homesteaded lands and public domain and about 4,000,000 unsurveyed land. A large part of this public land is heavily infested with one or more rodent pests. Practically all the unhomesteaded land and unsurveyed land serves as a breeding ground for jack rabbits. All of this area and the Fremont and Malheur National Forests are also infested with sage rats. Several counties also are suffering from

ground squirrels, and pocket gophers are found in all of the national forests. Digger squirrels or Douglas ground squirrels infest the edge of the Cascade and Coast Range forests. Moles are also numerous.

Imported Sheep Dogs Quarantined.

Because of the danger to live stock, especially sheep, of the gid tapeworm, imported sheep dogs are subjected to Federal quarantine. Sheep dogs have been found to harbor that parasite. During the last fiscal year representatives of the United States Department of Agriculture examined 131 imported sheep dogs for the presence of parasites transmitted to live stock, and 69 were found to be infested with parasites of various kinds. Twenty-two showed the presence of tapeworms, and one of the tapeworms expelled by treatment proved to be of the dangerous gid variety.

Rabbits Killed in Drives.

Idaho has conducted rabbit drives, in recent weeks, on as big a scale as when the country was new. Because the cold weather brought the rabbits by the thousands to feed in the irrigated lands, they threatened to do extraordinary damage in some sections. One drive netted over 8,000 rabbits and another 3,500. In Minidoka County, Idaho, 29,000 jack rabbits have been killed this winter in organized drives and 60,000 additional by poisoning campaigns. Once school was dismissed to permit the boys to take part. Four hundred people participated. Six rabbit drives in Lincoln County, Idaho, resulted in killing 1,800 bunnies. Each event took on the character of a community gathering. Sandwiches and coffee were served.

In Walla Walla County, Wash., 11,000 rabbits were killed by 600 sportsmen armed with shotguns. They formed a line 5 miles long and drove the animals to the point where the Snake and Columbia Rivers unite.

Local representatives of the United States Department of Agriculture have directed the work or have cooperated with the local county agent or other authority.

Dip Driving Out Sheep Scabies.

In the work of eradicating sheep scabies from the United States employees of the United States Department of Agriculture made more than 22 million inspections and supervised more than 10 million dippings during the last fiscal year. The work was conducted in cooperation with State officials. No cases of sheep scabies are now known to exist in Montana or North Dakota, in addition to numerous other States where the disease had previously been eradicated. In Idaho a spread of the infection during the previous year has been brought under control. Sheep scabies is a disease that has been prevalent chiefly in the western part of the United States.

Great Record for Idaho Clubs.

There are 2,889 enthusiastic boys and girls in Idaho ready to testify to the profitableness of club work. Reports for 1919 show that the clubs' production amounted to $95,992.31. The cost involved was $38,087.70. The net profit was $57,904.61. The largest project was canning. A total of 111 clubs with 934 members canned fruit, vegetables, and meat worth $34,909, at a cost of $17,181.

More Swine Immunized at Stockyards.

An outstanding feature of Federal activities for the control of hog cholera during the last year was the great increase in the number of swine immunized so that they might be distributed from public stockyards for purposes other than slaughter. The last report of the Bureau of Animal Industry, United States Department of Agriculture, gives the number of feed hogs immunized as 614,673. This is a large increase over the preceding year. The chief purpose of the inspection and inoculation is to permit reshipment to farms and feeding yards for further growth or fattening without danger to herds in which they are introduced.

Blackleg Vaccine Distributed Free.

Vaccine for immunizing cattle against blackleg is still in great demand. A report of the Bureau of Animal Industry, United States Department of Agriculture, shows that 3,339,815 doses were distributed free to stock owners during the last fiscal year. The vaccine sent out by the bureau is in the powdered form.

STREETS OF CITIES NEED MORE GOOD SHADE TREES

Simple and practical information with which the ideal of "the city beautiful" may be brought nearer realization is contained in a recently published bulletin, "Street Trees," prepared by a horticulturist of the United States Department of Agriculture. With very few exceptions, the bulletin points out, the tree growth of the streets of the average American town or city is ragged and unkept. That of the suburb or small village is not much better unless it has been under adequate municipal control, and the plantings on a given street have been confined to a single kind of tree. Those modern necessities, the telephone, telegraph, electric light, and trolley car, each have shared in the mutilation and destruction of good trees. Too few municipalities realize, however, that these modern facilities can be provided without impairing the beauty of shade trees. One means of preventing injury is more general use of alleys for public utility wires. Faulty purning has also caused much deformity.

Providing shade on city streets is as much a municipal function as providing lights or sidewalks, says the publication, and therefore should be undertaken by public officials. Negative control by requiring permits for planting, pruning and removal is little better than no control. Probably the most satisfactory supervision is through an unpaid commission of three or five members—men who should be appointed to long terms, since it takes two or three years for a commissioner to realize the needs and scope of the work.

Even a good board charged with the care of street trees can accomplish little without liberal funds. These may be provided by appropriation from the general tax fund or by direct assessment against the property owners, collectible with their taxes. In any event, the minimum appropriation provided should be sufficient to carry on properly the work already begun.

BELGIUM ATTEMPTING PRODUCTION

Belgium's efforts to restore prewar production are indicated by some of the crops of 1919. The average rye crop of 1909–1913 was 22,675,000 bushels and the production of 1919 was 13,681,000 bushels. Wheat had a 5-year average of 14,583,000 bushels and a production of 9,895,000 bushels in 1919. For oats, the 5-year average of 40,905,000 bushels compares with a crop of 26,920,000 bushels in 1919; for barley, 4,247,000 bushels with 3,617,000 bushels; and, for potatoes, 107,621,000 bushels with 76,064,000 bushels.

While agriculture in Italy was not made as productive in 1919 as in the average of prewar years, yet it was nearly up to the mark in wheat and oats and was about one-fifth below in corn, rye, and barley.

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TIME TO RETURN TO CLOVER IS ADVICE OF DEPARTMENT

Essential in Rotations to Conserve Fertility of Soil

Corn-Wheat-Clover the Most Important Combination; Use Abandoned Because of War-Time Need

It is time to get the land back into clover, says the United States Department of Agriculture.

During the war the Department of Agriculture impressed on the farmers the world's need for cereals, and the acreage in wheat and corn was materially increased. This naturally resulted in a decrease in the acreage in clover. Judging from the figures gathered by the Bureau of Crop Estimates, covering the production of pure clover hay, the acreage in this crop decreased in 1918 below that of 1917 about 20 per cent in the main portion of the clover belt. When it is considered that between the census years 1899 and 1909 the acreage had already decreased some 40 per cent in this area, the decline in clover culture seems to have gone so far as to threaten to be serious.

Rotation Widely Supported

The practice of rotating crops is advocated by the department and all agricultural experiment stations. Of all the rotations the most important is corn-wheat-clover, with oats in place of wheat where the corn occupies the ground too long to permit seeding wheat in time.

The Ohio Station found that in continuous culture for 20 years the yield of wheat fell from 9.24 bushels as an average for the first decade to 5.79 bushels the second, while in a 3-year corn-wheat-clover rotation the yield of wheat rose from 9.92 bushels the first decade to 12.78 the second. The Indiana Station found that clover in the corn-wheat-clover rotation increased the total value of the products over that produced when timothy took the place of clover by $8.07 in one case and $7.80 in another. The Illinois Station, as a result of a long series of trials, found that corn after clover yielded twice what corn after corn yielded and also more than corn in the corn-oats rotation. The Missouri Station found that a 6-year rotation with clover and timothy the last 3 years was financially profitable and maintained the productivity of the soil.

Some rotation should be used, and clover should be an important element in the rotation, but the particular rotation selected must depend on local and economic conditions. The organic matter in the soil is used up most rapidly when the land is in corn or wheat. It can be replaced by turning under crop residues, but legumes alone can add nitrogen as well as organic matter to the soil.

READ THE LAST LINE TWICE

During the war the farmers planted wheat.
The world needed bread.
Now is the time to get back to clover.
The land needs clover.

Rich Soil Under Clover

The Pennsylvania Station found that of soils under various crops the soil under mature clover was richest in organic matter and in nitrogen, followed by the soil containing clover residue or under young clover. C. G. Williams, of the Ohio Station, said in the Ohio Farmer: "Inability to dress cultivated land once in 3 to 5 years with manure, or failure to plow under a full crop of clover or its equivalent as frequently, may be expected, sooner or later, to bring about conditions in which commercial nitrogen can be used with profit."

But can the general farmer afford to buy commercial nitrogen when he can get the nitrogen through the clover crop? This is the question farmers must consider now. In spite of the high cost of seed, farmers will be well advised if they do not neglect the clover crop.

MORE HELP IN ROAD WORK URGED FOR WESTERN STATES

Secretary Tells of Government's Large Land Holdings

Advocates Provision for Continuance of U. S. Activities Under Federal Aid Act; 1921 is Last Year Covered

Speaking February 11 before highway representatives from Western States, Edwin T. Meredith, Secretary of Agriculture, stated his belief that in the Western States, where large areas of Government lands are located, the Federal Government should adopt a system of financial cooperation more liberal to the States than is the case in the rest of the country.

"I think we must recognize the fact that the existence of these large areas of Government lands places these States in a somewhat different situation from the remainder of the country," said Mr. Meredith, "and that it would be only equitable for the Federal Government to increase its percentage of cooperation over the present basis. I am also heartily in favor of continuing the appropriations for the building of national forest roads. These forests constitute a great natural resource and their preservation and development is a national responsibility which ought to be met in full measure."

Mr. Meredith advocated active continuation of present Federal and State cooperation in connecting State road systems with the systems of adjoining States in order that the working out of an adequate highway program for the whole United States may proceed in an orderly manner. He also advocated the continuance of work now going forward under the Federal Aid Road Act.

"As 1921 is the last year covered by the act," he said, "it would be highly desirable, in my opinion, for Congress to make provision as promptly as possible for the continuation of the work under the present system by an appropriation of at least $100,000,000 for each of the four fiscal years beginning with 1922."

HORSES ON FARMS DECLINE AS AUTOMOBILES INCREASE

Gradual Decline Since 1918 Shown By Bureau Reports

Value Also Goes Down, Making Market Unsettled and Future Uncertain; Mules, However, Hold Their Own

Horses in this country reached their maximum in 1913, and since then have been gradually decreasing, according to data compiled by the Bureau of Crop Estimates, United States Department of Agriculture. While this statement applies to the United States as a whole, the information secured by the bureau relates primarily to the supply of horses on farms and ranches, the gradual decrease of which is attributed to motor vehicles.

That the decline of the horse on farms is not due merely to the use of passenger automobiles is indicated by a survey recently undertaken by approximately 36,000 crop reporters representing the bureau in all sections of the country. They have reported the names of more than 49,000 farmers who use motor trucks on their farms. But the extent to which these trucks displace horses is problematical. In many cases the introduction of a truck on a farm indicates provision for increased hauling rather than an actual reduction in the number of horses used.

Horses Decline in Year

The estimated number of horses on farms and ranches January 1 of this year was 21,109,000, a decrease of 373,000 head, or 1.7 per cent, compared with a year ago. The total value of these animals this year is estimated at $1,992,542,000, as against $2,114,897,000 last year. This means an average value per head for horses of all ages of $94.39, compared with $98.45 a year ago. The average value per head 10 years ago was $108.03.

From these figures it is not difficult to understand why the horse market is regarded as unsettled and the future equally uncertain. The best demand during the past year has been in the South, while decreases have occurred on the western ranges. During the past two years the increased demand for feed for high-priced meat animals has made it relatively more costly to keep a horse on the farm.

Comments in the reports of field agents to the Bureau of Crop Estimates throw interesting light on the decrease in the number of horses. The agent in South Dakota writes: "With the competition of the gas tractor there has been a diminishing demand for the horses of the class largely grown in this State." The agent in Tennessee states: "The raising of horses and mules has declined to some extent in the past few years. The auto is taking the place of the horse in many instances. With the mule the decline is not so marked, as he is the mainstay of the farm, though a few mules are being replaced by the tractor."

No Wild Horses on Range

According to the field agent in New Mexico there are no longer any wild horses on the range in his State and the number of small Mexican cow ponies is rapidly diminishing. The field agent in Utah states that horses are liabilities rather than assets in his section. Speaking of the decrease in certain sections of Washington, the local representative in that State says: "Where a notable reduction has occurred in any county it seems due to replacement of horsepower by motor power."

While the number and value of horses has declined, there has been a slight increase in the number of mules in this country compared with a year ago. Most of these animals are in the Southern States, and the prosperity of that section is reflected in the increased demand and high prices paid for mules. The average value per head is $147.10 (all ages included), compared with $135.83 a year ago and $120.20 ten years ago. The total number of mules on farms and ranches the first of this year was 4,995,000, an increase of 41,000 head, or 0.8 per cent.

DON'T FORGET THE KEY

From the Atlantic to Iowa and from Tennessee to Canada CLOVER is the key crop in the rotation. Don't forget it!

MISBRANDED BEANS SEIZED BY U. S. FOOD INSPECTORS

Seizure of a large shipment of canned beans, labeled as "Red Kidney Beans," but which were long cranberry beans, was made recently in Chicago on information furnished by Federal food inspectors. Officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the Federal Food and Drugs Act, have received information that large quantities of the low-priced long cranberry bean have been put up under the label of the high-priced red kidney bean and are being sold to consumers at the higher price. Inspectors have been instructed to report for seizure all shipments so misbranded coming within the jurisdiction of the Federal Food and Drugs Act.

The long cranberry bean costs the canner only about half as much as does the red kidney bean, yet investigation has shown that when the long cranberry bean is sold under the label of the red kidney bean the price to the consumer is as much as that of the genuine red kidney bean.

The canner is able to sell the misbranded red kidney beans to the trade at a lower price than the genuine red kidney beans command and still make a large profit, since he pays only about half as much for the long cranberry bean. The honest canner who packs the genuine red kidney bean is forced to meet the unfair competition of the lower-priced product masquerading under the same name as the higher-priced one. The cut in price which the canner makes to the trade is of no benefit to the consumer, since investigation has shown that the retailer charges the consumer as much for the misbranded article as for the genuine.

The long cranberry bean, which is imported in large quantities from [illegible] an excellent article of food, and there is no objection to its sale and use under a truthful label, say the officials. The bean looks and tastes very much like the genuine red kidney bean, and if sold under its own name could soon establish a market on its own merit, but because its cost is so much less than the red kidney bean, its sale under the name of the higher-priced bean is demoralizing to the trade and unfair to the consumer. The officials have inaugurated a campaign to seize all interstate shipments of beans which in this particular violate the Food and Drugs Act.

MAY BAR ORIENTAL FRUIT STOCKS

In order to prevent the entrance of a number of plant diseases and injurious insects from the Orient, the United States Department of Agriculture proposes to prohibit the importation of fruit stocks, cuttings, scions, and buds from Asia, Japan, the Philippine Islands, and Oceania. The Secretary of Agriculture has called a hearing to be held in the offices of the Federal Horticultural Board in Washington at 10 o'clock March 9, at which interested persons may be heard, either in person or by attorney. The diseases and insects that the department seeks to exclude by the quarantine include Japanese apple cankers, blister blight, and rusts, the oriental fruit moth, the pear fruit borer, and the apple moth.

WOOL HOLDINGS DECREASED, QUARTERLY REPORT SHOWS

"Comfortable Reserve Supply" Found in Country's Holdings

Material Drop in Government Stocks Since Last Year; Quantity Held in Storage for Shipping Instructions

Wool holdings on December 31, 1919, were 624,000,000 pounds, grease equivalent, or 105,000,000 pounds less than on September 30, 1919, according to the quarterly wool stock report released February 12 by the Bureau of Markets, United States Department of Agriculture. That the commercial supply is evenly distributed is indicated by the fact that on December 31, 1919, manufacturers reported holdings of 244,000,000 pounds and dealers 242,000,000 pounds, grease equivalent. This should not be taken to indicate that dealers owned the quantity reported by them, for while they held practically one-half of the stock upon which there were no restrictions, it is evident that a considerable portion of it was being stored by them and being held [illegible]ng instructions.

Although the wool supply seems rather large, when referring to the total figures, it is not considered more than a comfortable reserve supply, which should be carried in this country at all times to meet any emergency in case the regular importations of wool were interrupted, says the bureau's wool specialist.

Government Holdings Decreased

The Government's holdings of wool have decreased materially since last year. The wool-purchasing quartermaster reported that on December 28, 1918, the total stock of wool in the possession of the Government, spot and in transit, was 313,746,502 pounds, and estimated the quantity of wool in dealers' hands not yet billed to the Government as 70,000,000 pounds, making in all 383,746,502 pounds, compared with 98,352,000 pounds on December 31, 1919. This clearly shows, it is claimed, that the Government released its wool holdings as quickly as possible in such quantities as the market would readily absorb through public auctions throughout the year.

The British Government in carrying out its proposed plan to liquidate its wool holdings sent to this country 18,939,000 pounds of grease wool and 731,543 pounds of scoured wool, which was reported by the representative of the British Government as being held in this country as of December 31, 1919.

The total holdings of dealers, manufacturers, and the United States and British Governments according to conditions were: Grease wool, 394,556,826 pounds; scoured wool, 60,770,844 pounds; pulled wool, 34,907,999 pounds; tops, 19,362,602 pounds; noils, 11,209,597 pounds.

The manufacturers' stocks according to geographic distribution were as follows: Massachusetts, 62,503,533 pounds; Rhode Island, 29,490,704 pounds; Pennsylvania, 28,145,024 pounds; New Jersey, 20,554,583 pounds; New York, 18,837,856 pounds, followed by New Hampshire, Ohio, Connecticut, and Maine.

The dealers' holdings of all grades, conditions, and classes according to cities were as follows: Boston, 126,625,921 pounds; Philadelphia, 22,796,584 pounds; New York, 12,895,428 pounds; Chicago, 12,659,106 pounds; St. Louis, 9,114,067 pounds; Portland, 2,947,759 pounds; San Francisco, 1,205,608 pounds; all other cities, 14,926,600 pounds.

Detailed Report Printed

The detailed report showing the quantities of each grade, class, and condition of stock held separately by dealers, manufacturers, and United States and British Governments, and the stocks reported on the high seas in transit to the United States as of December 31, 1919, together with dealers' and manufacturers' stocks according to geographic distribution, appeared in the Market Reporter of February 14, 1920. For the time being copies of the Market Reporter will be mailed, free of charge, to any interested party who will make request to the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

DON'T FORGET CLOVER

Corn, wheat, and CLOVER.

That is the most important rotation in America.

Where clover is no longer grown, yields are beginning to decline.

STATES ACTIVE FOR BETTER SIRES

A Federal report showing the progress of the better-sires movement from October 1, 1919, when inaugurated, to the end of the calendar year, includes numerous State activities.

In South Dakota a survey of 14 representative counties shows that 35 per cent of the bulls used were purebred and 5 counties reported an average of 52 per cent purebred boars used. It is noteworthy, however, that about 25 per cent of the purebred bulls were considered of inferior quality. The better-sires movement is aimed at the culling out of inferior purebred sires themselves as well as stopping the use of grade and scrub sires.

A Tennessee survey, reported by the county agent of Maury County, showed the following percentages of purebred sires used in that county: Boars, 63 per cent; bulls, 53 per cent; jacks, 31 per cent; rams, 19 per cent. The figures are in round numbers.

The North Carolina agricultural extension service has issued a 12-page circular showing clearly the financial value of better sires in the various classes of live stock. The circular shows by illustrations, concise statements, and calculations how the investment in good purebred sires is quickly returned in the superior value of the offspring.

SONORA UNDER REGULATIONS

The State of Sonora, Mexico, is no longer exempt from the regulations of the United States Department of Agriculture governing the entry of railway cars and other vehicles, express, baggage, or other materials from Mexico. When the regulations were promulgated July 1, 1917, as one of the measures against the pink bollworm of cotton, the States of Sonora and Lower California were made exempt from inspection and disinfection requirements. It has recently appeared, however, that railway cars and materials entering from Sonora by way of Nogales or Douglas, Ariz., may have come from the interior of Mexico, and are likely to be more or less fouled with cotton seed that may contain the pink bollworm. The Secretary of Agriculture, therefore, has promulgated an amendment to the regulations placing Sonora on the same basis as the rest of Mexico, except Lower California. Lower California, the other State exempted under the original regulations, is not affected.

HOW TO CONTROL HOG MANGE

Hog mange is spread mainly by direct bodily contact, according to investigations recently conducted by the United States Department of Agriculture. The disease is contracted most rapidly among hogs of low vitality, especially those kept in small inclosures. It spreads more slowly among vigorous animals kept in pastures or in clean, well-lighted, roomy pens or buildings. Failure by swine owners to control hog mange results in heavy losses from shrinkage as well as from a high death rate. The department states that the disease can be eradicated by four dippings in a lime-sulphur or arsenical solution with intervals of 6 or 7 days between dippings.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

GOVERNMENT GUARANTEES INVESTMENT

The successful farmer can not spare the time to investigate the merit of securities offered to him as investments for his surplus of cash balances. There is no worry connected with the purchase of Treasury Savings Certificates, each one of which is registered in the name of the purchaser, thus preventing possibility of loss by fire or theft. They earn 4¼ per cent compound interest when held until maturity, or 3 per cent when cashed before maturity. New regulations provide for the payment by the Treasury Department of cash immediately upon the surrender of each certificate. (Can not be cashed before second calendar month after purchase.)

PUT YOUR CASH BALANCES INTO TREASURY SAVINGS CERTIFICATES AGAINST SEED TIME OR HARVEST EXPENSES.

HOW FOREIGN COMPETITION AFFECTS DAIRY INDUSTRY

To meet foreign competition, dairy farmers of the United States must be able to produce a better quality of product and produce and market it more economically and more efficiently, according to specialists in the Bureau of Markets, United States Department of Agriculture.

Arrivals of shipments of Danish butter are already affecting prices on the New York city market. Argentina is producing nearly three times the amount of butter and cheese consumed, and some of the surplus may be expected to come to this country or compete with our products in foreign countries. Before the war Siberia was rapidly extending its dairy industry, and when conditions become settled in that country it may be expected to come back as a factor in the world's market. Recently there have been signs of interest in dairying in South Africa, and the industry as developed in New Zealand and Australia must be reckoned with.

If the dairy products manufactured in the United States are of a better quality than those from other countries they need not fear competition. Canada's cheese industry illustrates this. A strict system of Government supervision in the training of cheese makers, in the operating of the factories, and in the grading, marketing, and exporting of the product exists there. This has tended toward an improvement in the quality of Canadian cheese until it ranks with the finest on the English markets.

The dairy industry in Argentina has grown rapidly since the beginning of the war. Before the war butter exports from that country totaled 3,262 tons a year; in 1918 they were five times that. Cheese exports were far exceeded by the imports in 1913. Now the conditions are reversed—over 6,000 tons of cheese being exported in 1918.

To-day most of these exports are going to European markets, but should conditions become favorable it may be expected that some of them will come to this country. The Bureau of Markets warns dairymen to be prepared to meet this competition.

COMMUNITY-CLUB HOUSES TYPIFY WIDE MOVEMENT

Eight community houses in various parts of the United States have been described in a recent publication of the United States Department of Agriculture. A detailed description of these houses and their uses, together with reproduction of photographs, appear in "Rural Community Buildings in the United States." Copies of this bulletin may be had at 10 cents each by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C.

The activities of these communities and their community buildings are representative, in many respects, of a movement which is growing rapidly throughout the country. The data given are designed to be helpful to other towns and rural districts interested in organizing their social activities and erecting a structure for housing them.

According to the bulletin, nearly 300 community houses have been built in the United States. The majority have been constructed since 1912. Of the total numbers studied by the investigators, 201 were in places of 2,500 inhabitants, 83 were in the open country, and 55 in larger towns and cities.

The pamphlet shows that a large number of these projects were financed by popular subscription. Others were the gift of individuals or private concerns and a few were erected with public funds and are under the control of local officials. The publication contains many details regarding methods of management and maintenance. Dues, assessments, rentals derived from uses on special occasions, receipts from home-talent entertainments, and motion-picture shows are among the sources of revenue mentioned.

The investigators maintain that every community, whether its resources be large or small, would profit by a community structure of the sort described in this bulletin. Some of those listed are inexpensive, having cost as low as $2,000, while others represent an investment of $25,000 or $50,000.

DWELLING IS IMPORTANT PART OF FARM EQUIPMENT

The dwelling is the headquarters of the farm business. Chores are done before breakfast and often after supper, the stock need close attention, certain farm seeds are kept in the house, the hired man may sleep there, and the women folks often take care of the poultry; thus it is almost essential that the house be reasonably close to the other buildings, says the United States Department of Agriculture.

The value of the house constitutes an important part of the real estate value of the farm. On the higher-priced corn-belt farms and the low-priced cotton-belt farms the value of the dwelling represents from 5 to 15 per cent of the real estate value of the farm, while in the eastern part of the United States this percentage is more commonly 20 per cent or over.

The beautifying of the yard by shrubbery, flower beds, and a good lawn involves the occasional use of manure, the introduction of fertile soil, the use of a team and of small farm tools, all of which are available on the average farm.

IMPORTANCE OF FARM WOODLOT

About half the fuel used on farms in general is furnished directly by the farm in the form of wood. The average farm family uses annually between 9 and 10 cords of wood for fuel, in addition to which about 3 tons of coal is bought. The wood, furnished almost altogether by the farm, represents a very considerable item. The farm woodlot should not be overlooked by the farmer in planning for the economical utilization of the resources of his farm, says the United States Department of Agriculture.

New England, New York, and Pennsylvania In Proposed Quarantine Against Corn Borer

It appears advisable to consider restricting the movement from the New England States, New York, and Pennsylvania of all materials that might carry the European corn borer, said the Secretary of Agriculture in giving notice of a hearing which was held at the office of the Federal Horticultural Board in Washington at 10 o'clock, February 24. A survey made by the department has revealed no points of infestation west of New York and Pennsylvania, and it is now possible to consider a Federal quarantine, which was out of the question as long as new counties were being added almost daily to the territory known to be infested and when it was probable that, at any time, the insect might be found much farther west.

Area of Infestation

The European corn borer is now known to occur in portions of the counties of Essex, Middlesex, Suffolk, Norfolk, Plymouth, and Barnstable, Mass.; Rockingham, N. H; Saratoga, Fulton, Montgomery, Schenectady, Albany, Rensselear, Erie, Cattaraugus, and Chautauqua, N. Y.; and Erie, Pa. Throughout the period of infestation, products that may harbor the insect have been moving, with only minor restrictions, from the infected areas into the other New England States of Maine, Vermont, Rhode Island, and Connecticut. That fact makes it necessary to consider the advisabilities of quarantining the whole of New England, as well as New York and Pennsylvania.

Many More Hosts Found

The number of plants known to be hosts of the European corn borer has increased greatly since the original quarantine was promulgated. The hearing will cover the application of such quarantine to corn and broom corn, including all parts of the stalks, celery, green or string beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, and hollyhock, cut flowers or entire plants of gladiolus and dahlia, excepting the bulbs without stems, and other herbaceous plants.

The decision of the board and of the Secretary as to the result of the hearing will be announced later.

EXTENSIVE TESTS DESERVED BY "BUNCH" VELVET BEAN

The "bush" or "bunch" velvet bean is a new variety that is probably a sport or variation from the Alabama variety. It differs from all other velvet beans in cultivation in being nontwining. That is, it is strictly or practically "bunch."

This variety apparently first developed in 1914 as a single plant on a farm in Georgia. The owner carefully saved the seed and states that he obtained from the 1915 crop the remarkable amount of 60 bushels, which he distributed to his neighbors. The variety since has become abundantly established in a limited area centered about Adrian, Ga., where it has practically replaced other varieties.

The plants average about 3 feet in height, about as high as the ears on corn plants. They branch near the ground. Most of the branches are short, but occasional ones are 5 to 7 feet long. The long branches show no inclination to twine about cornstalks. The stalks of the flower clusters and pod clusters are decidedly longer than in other varieties. All the pods are produced near the base of the plant, but the stem is stiff enough to support the clusters, so that few of them rest on the ground.

In appearance the pods and seeds are exactly like the Alabama and Florida varieties and the pods have the same ability to resist decay when they lie on the ground. The bush velvet bean matures in about the same period of time as the Alabama variety, but the yield is apparently slightly less.

Advantages of Bush Bean

One apparent advantage of the bush velvet bean is that it does not twine on the corn, and therefore does not tend to pull down the stalks. For that reason it should be especially valuable for planting in orange and other groves where any variety which climbs the trees is decidedly objectionable, particularly while the trees are young. Another advantage is that it may be used as a hay crop, like cowpeas, as the absence of twining stems does away with the common difficulty in mowing ordinary velvet beans, which make a tangled mass of stems.

The bush velvet bean deserves extensive testing, according to United States Department of Agriculture specialists. The wide popularity it has already achieved in the limited area where it is known indicates that it may become highly useful and particularly valuable for the special purposes indicated. As this variety is a new one, it is urged that those who test it make provision to save their own seed, as for two or three years to come seed will probably be scarce and costly.

How to Plant It

The seeds should not be planted too early, but at about the same time as cotton, as the vines do not make a thrifty growth until the soil has become well warmed. One bushel of seed will plant 2 to 3 acres. The seeds should be dropped 2 to 3 feet apart in rows 3 to 3½ feet wide, and should be covered the same as corn. Seeds may be planted either alone or in the same rows with corn. After planting, the crop should be cultivated about like cowpeas.

HOME CLOVER SEED BEST

Home-grown seed is more likely to make a good stand than Italian.

American clover is less liable to disease than Italian.

Insist on knowing what you buy.

USE MANURE ON GARDEN LANDS

American gardeners could well afford to learn a lesson from the French gardeners regarding the use of manure on their land. In some cases where French gardeners are working on rented land, a clause in the lease provides that should the gardener be required to vacate the land he is permitted to remove the top soil to a specified depth. It is customary to apply anywhere from 4 to 8 inches of manure a year on French gardens. This is composted and mixed with the soil and in the course of a few weeks becomes a part of the soil itself. It is needless to state that some enormous crops are grown on this land.

While it would not be possible for American gardeners to secure sufficient quantities of manure to apply it at the rate that is used by the French gardeners, yet an effort should be made to secure as much of this material as possible and put it directly upon the land where intensive crops are to be grown. The plan of having a compost heap in one corner of the garden where everything in the nature of manure can be piled and composted together is a good one. Into this pile should go all weeds that do not bear objectionable seeds, pieces of sod, clippings from the lawn, leaves and manure. By turning the pile at intervals, a rich, mellow material is produced which is suitable for top dressing the garden soil. Owing to the limited quantity of manure available at present its use should be restricted to those crops that make a quick growth and require plenty of fertility in the soil.

Grazing Season on National Forests Shortened to Save Forage Resources

Early spring grazing on western ranges has so materially reduced the carrying capacity and forage resources that the Forest Service, United States Department of Agriculture, has found it necessary on many of the national forests to shorten the present grazing season from two to four weeks. This cut will be put into effect this spring.

"It is the purpose of the Forest Service," states an official in charge of grazing, "to place the live-stock industry on the national forests on a substantial, permanent basis. To do this it is necessary to produce a maximum cover of vegetation on all ranges. The first precaution is to avoid too early grazing.

Must Give Plants Time to Grow

"Every stockman interested in his business knows that forage plants can not be grazed the instant they begin to show above the ground. Such early spring use of the range not only decreases the density and luxuriance of plant growth, but also reduces the carrying capacity and the fertility of the soil, and, if continued, ultimately results in waste range.

"Studies carried on at the Great Basin Experiment Station in Utah have proved that where plants are continually cut back or cropped, the root system loses its vitality and the plant soon dies. On some of the national forest ranges which are grazed early and heavily the forage plants are showing similar signs of serious damage, and will rapidly go from bad to worse if remedial measures are not put in force. The old grasses, with their root systems weakened by repeated cropping, are almost exterminated and are being replaced by worthless weeds.

Damage From Erosion

"Erosion of the soil has also started in many places and threatens serious damage. Experiments have shown that off a 10-acre tract, heavily overgrazed, as much as 25 tons of earth and rock have frequently been washed down after a few minutes of heavy rain. These are some of the things which follow in the wake of too early use of the range and from overgrazing.

"A grazing season that starts later in the spring, thus giving the forage plants a chance to develop, and more careful management of the range, will do much toward bettering and eventually eliminating such conditions."

GRAIN GRADING POPULAR IN PORTLAND

The grain grading "school" at Portland, Oreg., has a new class. It started about the middle of January and is attended by about 20 interested members of the Merchants' Exchange. The class meets every Wednesday morning at the Federal grain supervision office and learns how to apply the Federal grades. The supervisor reports a steady increase in size and interest.

The first class, which started last August, now has an attendance of about 40 each week. Grain dealers, samplers, weighers, dock and elevator superintendents, and State inspectors make up the membership.

The Federal grain supervisor did not expect, when he started it, that the school would last more than a few months, but it has proved so popular that he has agreed to keep it going as long as "pupils" desire to come.

The farmer who provides pasture for his hogs whenever possible, says the United States Department of Agriculture in a new bulletin, is the one who makes the production of pork most profitable.

FOREST FIRES REPORTED BY FORESTER IN VIRGINIA

In Virginia data as to forest fires are furnished by the State forester's office to the Forest Service of the United States Department of Agriculture. There is an organized effort in Virginia to control such fires, reports on which are secured in about 20 counties from forest patrolmen and in the other 80 counties from forest-fire reporters, who report directly to the State forester.

These facts are given in amplification of an article recently published in the Weekly News Letter. It was stated that volunteer forest-fire reporters were needed to assist in meeting the menace of forest fires in the South. No reference was made to Virginia because that State, while generally regarded as being part of the South, is not so grouped in the administration of the matters dealt with in the article.

The Forest Service states that it is unnecessary to appeal for volunteer fire reporters in either Virginia or Kentucky because it already has means of securing data from these States through cooperation of the State foresters.

PLANT CLOVER RIGHT

Do not plant clover unless you plant it right.

Lime, good seed, and a good seed bed make the difference between a stand and a failure.

Plant with a drill if you have one; if not, cover the seed with a harrow.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended February 14, 1920:

Organization and Results of Boys' and Girls' Club Work (Northern and Western States), 1918. Department Circular 66.

How Teachers May Use Farmers' Bulletin 602. Clean Milk: Production and Handling. Department Circular 67.

Safe Farming in the Southern States in 1920. Department Circular 85.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention, make your request *definite* by specifying the distinct class and number of publication desired; for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

TO DOUBLE LIVE STOCK VALUE

St. Joseph County, Mich., plans to double the value of its live stock within three years. Current activities to accomplish the purpose are described by William T. Langley, president of the St. Joseph County Live Stock Breeders' Association, in a statement he has furnished the United States Department of Agriculture.

"We want every man," he declares, "to give us a pledge to use nothing but purebred sires.

"We have a sign in the making that reads 'Purebred Sire Farm' that we want posted on every farmyard gate.

"We want nothing but high-grade and purebred females."

A general association has been organized that includes the members of the various breeding associations and also all breeders of grades that pledge to use only purebred sires.

Thrift is shorthand for "Waste not, want not." Buy War Savings Stamps.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Fifty Thousand Farmers Own Trucks

At least 50,000 farmers in the United States own motor trucks which they use on their farms. This is shown by a preliminary survey of the ownership and use of motor trucks by farmers undertaken by the Office of Farm Management and the Bureau of Crop Estimates of the United States Department of Agriculture. The data secured by this inquiry answer many questions which have been asked repeatedly in recent years regarding the extent to which motor vehicles are used for farm hauling.

The figures on which totals for the Nation and the several States are based were secured from approximately 35,000 selected crop reporters of the Bureau of Crop Estimates. These cooperators were asked to report the names and addresses of farmers they knew who own motor trucks for farm use. Pleasure cars and trailers for use with pleasure cars were excluded, and the reporters were asked not to take account of trucks which are used primarily for general custom hauling, or on regularly established routes.

This survey can scarcely be considered a complete census for it is probable that in some localities the crop reporters were not acquainted with all the truck owners but it is certain that a very large per cent have been listed. It is believed that in no State were less than 75 per cent of the trucks reported. If not complete in every respect the figures show the relative distribution very satisfactorily.

The exact number of motor trucks reported is 49,195, divided among the States as follows: Alabama, 847; Arizona, 95; Arkansas, 721; California, 1,019; Colorado, 804; Connecticut, 357; Delaware, 100; Florida, 380; Georgia, 1,808; Idaho, 329; Illinois, 2,261; Indiana, 1,548; Iowa, 2,773; Kansas, 1,732; Kentucky, 818; Louisiana, 310; Maine, 435; Maryland, 596; Massachusetts, 661; Michigan, 1,636; Minnesota, 1,255; Mississippi, 957; Missouri, 2,065; Montana, 359; Nebraska, 2,739; Nevada, 41; New Hampshire, 283; New Jersey, 862; New Mexico, 104; New York, 3,171; North Carolina, 1,450; North Dakota, 501; Ohio, 2,261; Oklahoma, 723; Oregon, 369; Pennsylvania, 2,760; Rhode Island, 152; South Carolina, 1,190; South Dakota, 1,708; Tennessee, 978; Texas, 1,668; Utah, 173; Vermont, 282; Virginia, 1,128; Washington, 682; West Virginia, 465; Wisconsin, 1,465; Wyoming, 174.

Million Trees for Nebraskans

More than a million trees from the Bessey nursery at Halsey, Nebr., have been distributed among 5,080 people by the Forest Service, United States Department of Agriculture, since 1912. Those receiving the trees are residents of the Kinkaid enlarged homestead district, a special provision in the act creating this district having provided that the residents should be entitled to receive trees from the Forest Service. Recently steps have been taken to get the largest benefit from the distribution of trees by arranging with the county agents in the districts to receive applications for trees, to assist in planting trees, and to make annual reports regarding the condition of trees coming under their notice.

Potato Wart Under Control

In the war against potato wart the United States has done in less than two years what other countries had not succeeded in doing in decades. Wart has been for a long time a destructive disease of potatoes in Europe, and the belief always was that once a garden or field became infected there was no way of eradicating it. An infected area, even when no potatoes were planted in it for a number of years, would show the disease still virulent when again planted to potatoes. The potato wart disease was discovered last year in gardens in some small mining towns in Pennsylvania. The United States Department of Agriculture quarantined the infected areas and the specialists of the department began experiments in control. They have now announced that a field or garden infected with potato wart can be thoroughly disinfected by the use of steam and formaldehyde. The cost of the work, however, is high, and it will be used only when absolutely necessary in cleaning up the infected areas.

The investigators of the department, who have worked in cooperation with the State authorities of Pennsylvania and West Virginia, have also discovered varieties of potato that are immune to the wart disease, and steps are being taken to assist gardeners in the infected regions to purchase varieties of seed known to be immune. The department specialists now believe that further losses from the disease can be practically eliminated.

Cattle Ticks Given No Rest

Preparations are under way in the tick-infested Southern States for active resumption in the spring of the campaign against the destructive cattle parasite. Last year's plan of beginning dipping operations as early as possible in March will be followed this year. In fact, it is expected that the early dipping this year will largely surpass anything done in previous years. Thus the cattle tick will be killed before he has a chance to acquire a large and active family.

In some sections where weather conditions made it possible, dipping has been kept up through the winter, and the costly little bug has been given no rest in the season when it has been customary to suspend active field work.

An area of 219,581 square miles remain to be freed from the domination of the tick. Officials of the Bureau of Animal Industry, United Stat. s Department of Agriculture, are confident that a large slice of this area will be taken out of quarantine as a result of the 1920 campaign.

Get Back to Clover

From the Atlantic to Iowa and from Tennessee to Canada clover is the key crop in rotations, but there is a gradual though steady decline in the culture of red clover in this area. Specialists in the Bureau of Plant Industry, United States Department of Agriculture, are seriously concerned over this decline and urge all farmers to get back to clover.

Less planting of clover has injuriously affected the productiveness of the region and is likely to affect it still more injuriously if something is not done either to increase the acreage of clover or to find a substitute.

"Whether a farmer adopts a three, four, or five year rotation," the specialitsts declare, "he is sure to find that his yields will decline if he does not have clover somewhere in the rotation. Theoretically, of course, it is possible to substitute another leguminous crop for clover, but practically clover fits so well into the agri-

cultural practices of this section that it is the only leguminous crop having any large degree of influence upon keeping up the productivity of the soil."

Shows Benefits of Regulations

Efforts are being made by the Bureau of Animal Industry, United States Department of Agriculture, to point out the constructive side of regulatory work affecting quarantine, inspection, and general interstate handling of live stock. Disease eradication, the Chief of the Bureau points out, is the basis of ample production and a final analysis of liberal consumption and proper nutrition. If the live-stock men of the country had to contend with pleuropneumonia, foot-and-mouth disease, surra, rinderpest, and other animal scourges on top of their present problems, production certainly would fall and consumption would be curtailed by reason of high prices necessary to cover the risks of growing live stock. Fortunately, the list of diseases mentioned may be considered a problem already solved. They do not exist in the United States and the Bureau is on the alert to keep them out. The Bureau has also taken energetic steps to check attempts at shipping diseased stock interstate and has perfected its regulations especially with regard to bovine tuberculosis.

Coupled with those efforts and to acquaint stockmen with the constructive side of the work, the Department has pointed out at frequent intervals the purpose of the regulations. As a result closer cooperation is developing between the public and the Bureau's inspectors and veterinarians—a condition helpful to the effectiveness of field work.

The Ounce of Prevention Applied

Cotton planters, already fighting the boll weevil all the way from New Mexico to the Atlantic Ocean and threatened by the pink bollworm which occasionally gets across the Rio Grande, are not to have any more alien enemies on their hands if the United States Department of Agriculture can prevent it. Importers recently have insisted upon bringing in a considerable quantity of cotton seed from Porto Rico. The seed may be free from disease, or it may not be. Nobody has very accurate or thorough knowledge of infecting insects and pests of cotton in Porto Rico. So, before admitting the Porto Rican cotton seed, the Department of Agriculture is going to make a thorough investigation of the subject. A specialist has been commissioned to go to Porto Rico and make a study of cotton insects on the island. His report will enable the Department to be certain whether or not cotton seed from Porto Rico is in any way a menace to the cotton interests of the United States.

Angoras Clear Land in Ozarks

The success which has attended the raising of Angora goats in the rugged Ozark country of southwestern Missouri has suggested to specialists of the United States Department of Agriculture that it might be equally profitable to place such herds on many other wild tracts, particularly those which have been cut over, because these goats are proving of great help in clearing away underbrush. While growing mohair and producing kids, the Angoras in the Ozarks are also trimming down the brush, manuring the hills, and preparing the way for grass, cattle, and sheep.

Some owners of brush lands, not wishing to invest in goats, have paid goat owners from 50 to 75 cents per animal per season to clear the land for them. Thus the herd owners, by renting out their goats, have received good returns for their browsing instead of having to pay feed bills.

In addition to the rental income, good Angora nannies, when properly cared for, are returning an average of 3 to 3½ pounds of mohair and are bearing a goodly number of kids. Well-bred, thrifty wethers, bucks, and young goats are keeping the average of mohair clip up to about 3½ pounds. With mohair selling from 50 to 75 cents a pound and kids valued at $3 to $4 per head, each rented nannie returns from $5 to $7 per year, gross.

According to reports secured by a representative of the State College of Agriculture in Missouri, the number of Angoras required to clear an acre of land varies from 2 to 5 depending on the density and size of the brush. Two years of constant browsing with this number of goats results in absolute destruction of practically all underbrush. In some cases the animals have suffered from continuous browsing in dense undergrowth for too long a period and some goat men are finding it advisable to provide a better range where their animals can feed part of the time.

War Trucks for Road Builders

To date the War Department has turned over to the United States Department of Agriculture approximately 24,000 motor vehicles, as provided in congressional legislation empowering the latter department to distribute this war material among the State highway commissioners for use in road building, allotments of the vehicles to be based on the amount of Federal aid for roads which the States receive. This is practically all the vehicles which the War Department has to release. Of this total 12,000 have been delivered to the States. The remainder will be distributed as fast as railway cars can be secured for their transportation. Representatives of the Bureau of Public Roads, in charge of the matter, believe that within two or three months all of the vehicles will have been delivered to the States. This equipment promises to be a great aid in carrying out the large road building program for 1920.

The State highway commissioners are also interested in securing allotments of tractors, steam shovels, locomotive cranes, automotive cranes, industrial railway track, dump cars, and industrial locomotives which remain to be disposed of by the War Department. A measure known as the Kahn Bill, directing the Secretary of War to release this material for the State highway commissioners, has passed the Senate and has been reported out of committee in the House. Until the Secretary of War has been directed by Congress to turn over this equipment it is not likely that it will be available for State distribution.

Forestry Lectures for Teachers

The school children of Denver are enjoying special opportunities to learn much of value regarding practical forestry problems. A local representative of the Forest Service of the United States Department of Agriculture is giving a series of lectures on subjects relating to forestry to 200 Denver school-teachers who, in turn, pass on the information to their classes. The lectures are illustrated and deal with fire protection in the forests, forest improvement, grazing, tree planting, game preservation, and similar topics. Work of a somewhat similar character is also being carried on by a forest ranger in Portland, Oreg., who has arranged to give talks to the Boy Scout troops in his vicinity.

Idaho Drives Kill 30,000 Rabbits

In 18 rabbit drives conducted in three successive weeks by the Bingham County, Idaho, Farm Bureau, with the cooperation of the Biological Survey, United States Department of Agriculture, 30,500 rabbits were killed. The first week there were 4 drives in 3 communities, and the number of rabbits destroyed was 8,000. The second week 8 drives were held in 6 communities, attended by 1,900 people, and resulting in the killing of 12,000 rabbits. The third week 6 drives in 4 communities were attended by 1,600 people and resulted in the killing of 10,500 rabbits.

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FARMERS ASKED TO ASSIST IN COMPLETING U. S. CENSUS

Secretary Calls Attention to Need for Accurate Information

Full Reports Essential to Give Basis for Proper Action in Solving Agricultural Problems; Delay from Cold Weather

Edwin T. Meredith, Secretary of Agriculture, in a recent statement appealed to American farmers to give their hearty cooperation in securing a full and accurate census of the farms. The Department of Agriculture has been informed by the Bureau of the Census that the work of taking the farm census is not proceeding as well as had been hoped, partly owing to the winter weather as contrasted to the spring and summer days when the census has been taken in past years.

"If one farm is missed in the census enumeration the returns will be incomplete," says the Department of Agriculture. "It is the public duty, as well as to the individual benefit, of every farmer to have his farm represented in the census."

How to Reach Enumerator

All farmers are asked to assist the census enumerators to obtain complete figures for their own and their neighbors' farms. If it is believed that any farm has been missed the local enumerator should be notified. A note mailed through the post office addressed simply to "The United States Census Supervisor," will be delivered to the district supervisor and receive prompt attention.

Farmers are reminded that, according to law, information they furnish the census enumerators is absolutely confidential and can not be given to income-tax collectors or tax assessors, and must not be used for any purpose other than the compilation of census reports. Census enumerators are prohibited by law from making public any of the information they obtain in their official duties.

Full Returns Essential

The delay and difficulty in the work of enumerating the farms is a matter of serious concern to the Department of Agriculture. The census shows the changes of the past 10 years, the present conditions, and furnishes other data which are essential to the satisfactory consideration of many important problems in the field of agriculture.

The census figures are particularly useful to the Bureau of Crop Estimates, because they are the basis of the Government reports until the next census is taken. The census report of acreages, etc., by counties, is the foundation on which is built up the structure of estimated production and supply, upon which prices depend, and upon which in turn depend the welfare both of the farmer who produces the supplies and of the general public that consumes them.

Important Problems Affected

Intelligent action on such matters as farm tenancy and ownership, economical marketing of farm products, and other important problems will depend upon accurate, reliable census returns.

AN ALL-PUREBRED FARM

Declaring that not only all his sires but likewise all his female breeding animals were purebred, Charles P. Hamm, a South Dakota farmer, applied for enrollment in the "Better Sires—Better Stock" campaign conducted by the United States Department of Agriculture in cooperation with State agencies. He is a breeder of Shorthorn cattle, Percheron horses, Duroc-Jersey hogs, Rhode Island Red chickens, and Bourbon Red turkeys.

The better-sires movement is aimed particularly at the use of superior purebred sires, but the majority of those enrolled also keep some female stock. Mr. Hamm, however, is the first person officially listed as keeping five classes of live stock in which all the animals—both male and female—are purebred.

HELP BUYER MEET SELLER OF PUREBRED LIVE STOCK

Department and States Centralize Data on Animals for Sale

County Associations Find That Complete Surveys of Stock Are Helpful; Developing Foreign Demand

Various systems and methods of marketing purebred live stock now in use, with a view of effecting a system of communication among breeders, farmers, county agents, State agents, and State and National live-stock associations, which will enable breeders to dispose of their surplus more easily and assist buyers in locating the desired stock close at home, have been investigated by the United States Department of Agriculture through its Bureau of Markets.

Must Encourage Small Breeders

Breeders of purebred live stock have felt for a long time that there is need for a closer acquaintanceship with the live-stock farmer who does not breed purebred animals. The breeder with only a few animals especially often has difficulty in disposing of his surplus profitably, and the man who never before has purchased purebred animals frequently needs information relative to the location, value, and quality of the animals desired. Such information is of especial importance if it helps him in finding what he wants near at home. Although in many instances the animals offered by the small breeder may lack condition and are inferior, the principal reason for his inability to sell is the fact that he is not a well-known breeder, he is not acquainted with the usual methods of selling purebred live stock, and he has not been able to realize the value of advertising.

Since a substantial growing industry depends largely upon the success of a large number of small breeders, it is of vital importance that a reasonable profit

from the beginning be realized or they will become dissatisfied and quit the business.

The principal difficulty lies in the inability of the uninformed purchaser to get definite, accurate information regarding the kind of animals to buy and where they can be located most easily. The importance of starting with the right kind is so vital to the success of the business and there is so much misinformation that the purchaser needs advice from a disinterested party in whom he places confidence.

The Bureau of Markets, in cooperation with the various State agricultural colleges, county agents, and local livestock associations, is inaugurating a plan which will assist buyers materially in obtaining easily information regarding purebred animals. The plan is based upon the cooperation of the breeders within a county or community. The farm bureau or county agent's office is the headquarters for the local cooperative association and usually the county agent is the secretary.

Although many different ways of getting results are employed by the various local associations the principal object in the plan of the Bureau of Markets is for the association to supply definite detailed information regarding the various herds in the county to those who desire it. This enables the buyer and seller to get together easily in order that a sale may be made, and when this is done the association considers it has accomplished its purpose. It is obvious if the secretary is to direct buyers he must be well acquainted with the breeders and the herds in order to furnish the necessary information readily.

Survey Is First Step

Naturally the first step is to make a survey and determine the number of breeding animals in each herd, the number of each sex, the age and quality, and the kind of sire heading the herd, together with the exact location and the approximate number of animals offered for sale each season, this being the information needed. As soon as this information is completed it is filed in a form readily accessible to anyone. By this method fairly complete files may be maintained by collecting such data twice each year, and when direct inquiries are made more definite information may be obtained by telephone. The information is then plotted on maps, which are placed in conspicuous places where everyone will have an opportunity to see them. In a surprisingly short time every farmer in the county knows where all of the breeders within the county are located. In some States the county agent obtains a list of the number of animals for sale each month and this list is published by the State field agent in marketing and distributed within the State. In counties where this plan has been most successful county agents claim to have done as much as $9,000 worth of purebred live stock sale business each month.

Where the demand is not great enough to absorb the supply within a county the members of a community use two methods for disposing of the surplus. One is to conduct a consignment sale and sell the animals at auction. The other is to advertise extensively as a purebred live stock center or county. Both methods have given excellent results. Some communities, however, have made the mistake of selling all of their best animals privately and consigning the culls or less desirable animals to the sale. Such sales are frequently a great disappointment, and great care should be taken to offer nothing but high-class animals at auction, because visitors are sure to judge the quality of a man's herd by the animals he consigns to the sale.

MORE AIMS THAN MONEY

The object of the boys' and girls' club work of the United States Department of Agriculture and State colleges has always been and still is to develop boys and girls into useful men and women with an interest in the work of the farm and home and the industries upon which the future of the community and State depend. Growing of pigs, increasing yields of corn, designing of economical and attractive clothing, and conservation of fruit and vegetables are incidental to this undertaking, important as they may seem. In other words, a boy can not develop a State champion pig without at the same time developing himself.

State Center for Information

As soon as the survey is completed in a county a copy of the tabulated data is sent to the State field agent in marketing where the data from all of the counties are kept. The object in filing the information from each county with the State field agent in marketing is to enable him to handle inquiries within the State and to furnish buyers the necessary information sent in by the various county agents. It enables him to direct men in adjoining counties and those who desire car lots of certain breeds to certain groups of counties which have a very large number of animals.

The State field agents of the Bureau of Markets, cooperating with the animal husbandry men of the college, work out plans for assisting buyers both within and outside the State in locating the animals needed. They often help county agents find animals for club members, make definite arrangements and plan trips for out-of-State buyers in order that they may see the maximum number of animals at the least expense. They also cooperate with breed associations in conducting local auction sales.

Recently the field agent in marketing and the animal husbandry specialist in Nebraska attracted buyers from Texas who bought 300 purebred hogs in one lot from four adjoining counties. The fact that these men were assured that they would be shown 1,000 high-class registered breeding hogs a day in five adjoining counties was one of the strong arguments which caused them to cross some of the other leading live-stock States and buy their hogs in Nebraska. The Texas men were extremely well pleased with the service rendered and the breeders were pleased to get the opportunity to make such sales. As the plan becomes well established, so that the county agents know where the various herds are located and the kind that are for sale, the foreign buyers will find the services of these county agents of great value in locating the kind of animals they want.

Data for United States Collected

The State field agents in marketing, of whom there are 28, transmit a condensed report to the Washington office of the Bureau of Markets, where it is kept on file for use in directing foreign buyers and buyers in various sections of the United States to districts most accessible to them.

In a recent communication it was learned that a buyer in central Florida made inquiry for a carload of Herefords in central Montana, approximately 2,500 miles away. It later developed that he could have obtained animals at a very reasonable price, sired by an international grand champion bull, within 150 miles of his home. Had this man bought animals in Montana he would have had an enormous freight bill to pay, the long trip would have been extremely hard on the cattle, and it would have been necessary for them to become accustomed to the change in climate and altitude before they would have done well; and it is quite likely the initial cost on the farms would have been the same for the same quality of animals. Although this is a striking example of the need of the service described herein there are hundreds of less striking but similar cases every year in different sections of the United States.

(Continued on page 6.)

Right Planting Essential for Clover; Be Careful in Buying and Sowing Seed

The great hindrance to an extensive planting of clover this year is the price of the seed, which has advanced to the unprecedented figure of 60 cents a pound wholesale for the best grade. High prices, however, should not stop the planting of clover and the return to proved rotations, but should serve simply as an additional reason for sowing the seed with the greatest care, according to United States Department of Agriculture specialists.

Plant the Seed Right

Clover should not be planted at all unless it is planted right. Scattering expensive clover seed on poorly prepared ground is the poorest economy. The crop should be provided with a seed bed which is firm, moist, and fine, and the quality of the seed should be of the best. If the land is "sour" it should be limed for red and sweet clover.

Probably the most certain way to obtain a stand of clover is to sow it with a drill alone, on especially prepared ground. Special clover or alfalfa drills are now available and when a sufficient acreage is being grown to justify their purchase the use of these implements is to be recommended. On smaller areas a regular grain drill can be used if provided with spouts leading from the grass seed box back of the shoes or disks. On most soils a better covering of the seed is obtained if the drill is equipped with chain seed coverers, as these leave a flat furrow. Unless the soil is in a mellow condition a shallow seed bed must be prepared for the drill.

When a drill is not available the seed can be scattered with a rotary seeder, a wheelbarrow seeder, or by hand. The ground, however, must be in fine mellow condition, which means that seeding must be delayed until the soil can be stirred once or twice with a spike-tooth harrow. When seeded in this way the seed must be covered, usually with a spike-tooth harrow, but sometimes with a heavy brush drag. One-half inch in clay soils and an inch in lighter soils is about the proper depth of planting. If the clover is being seeded in grain the seed bed may be prepared as above and the seed covered without injury to the grain, the teeth of the harrow being slanted slightly backward and the harrow run at right angles or diagonally to the rows of grain rather than parallel with them. On land in winter wheat suspected of being "sour" lime may be put on and harrowed in lightly so as to mix it with the surface soil. This is not as good as liming in fall, but better than sowing red clover seed without liming. Burnt lime should be applied at least a week before seeding so that it may be mixed with the soil and not injure the seedlings.

Scattering Seed on Snow

An old, familiar method of seeding clover is to scatter the seed on the snow very early in the spring, just as the spring thaw commences. The frost leaving the ground leaves the surface soil honeycombed with fine cracks, into which the clover seed falls and is covered. This practice is most successful on level fields evenly covered with a soft melting snow. It should not be attempted on hillsides or in deep snow, as the seed may be washed away.

BE SURE OF CLOVER SEED

Test your clover seed. It costs too much to take a chance.

Insist on knowing whether the clover seed you buy is home grown or imported.

Neither should the seed be scattered on snow covered with a hard crust, nor on frozen ground, as a strong wind is liable to blow the seed into piles. Unless the clover can be sown before the frost is out of the ground one of the other methods of seeding should be employed as the weather late in the spring can not be depended upon to cover the seed.

Cheap seed like cheap fertilizer is always expensive. Cheap seed is cheap because it is poor. Because of the competition on the clover-seed market clover seed grades are based very closely on their actual value, and the buyer gets pretty nearly what he pays for. As has been remarked, "Buying cheap seed in order to save money is like stopping the clock in order to save time. There is no saving."

Clover Seed Is Easily Tested

First-quality clover seed from a reliable seedsman can usually be depended upon to possess good germination and be free from weed seeds. However, if there is any doubt as to the quality of the seed it can easily be tested for germination in the same way that corn is tested, by counting out 100 seeds and placing them in a sand or rag doll germinator for a week. The number of seeds which germinate in that time is the percentage of germination of the lot. The percentage of weed seeds is harder to detect, as many weed seeds resemble the clover seed in appearance. However, with the use of a magnifying glass the majority of the weed seeds can easily be seen. The percentage of weed seeds can be roughly determined by taking 100 seeds just as they come and counting out the weed seeds. Not all foreign seeds in clover are harmful but the farmer paying for clover seed should get it. A good quality of red clover seed should show at least 90 per cent germination and 99 per cent purity.

Home-Grown Seed Is Best

During the past 12 months large quantities of Italian-grown red clover seed have been imported into this country. Tests have shown that seed grown in Italy produces plants which are less hardy and more subject to disease than plants from American-grown seed. If the season is favorable, the Italian clover may give satisfactory results but in general home-grown seed is more liable to make a good stand. When purchasing clover seed the buyer should insist on knowing the countries in which the various samples of seed were grown.

INSPECTION IN SMALL MARKETS

Grain is now being shipped direct from small markets or inspection points in the central West to the consumer or to ports for export, on the basis of inspection at the shipping point, according to reports received by the Bureau of Markets, United States Department of Agriculture. This is largely possible, according to the Federal grain supervisors of the bureau, because under the grain standards act inspection and grading under the national standards is no longer confined solely to the larger markets. Any interior point having a Federally licensed inspector can have official inspection.

PLANT AND FERN COLLECTORS

Have you an intrenching knife, of the kind formerly used in the United States Army? If so, you have an instrument that will be found useful in the field collection of flowering plants and ferns. Ordinary garden trowels are much too weak for field work, according to Department Circular 76, "Directions for Collecting Flowering Plants and Ferns," which has just been issued for free distribution by the United States Department of Agriculture.

Weekly News Letter

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Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

ASKS FARM ORGANIZATIONS TO PROFFER THEIR IDEAS

In seeking solutions for present-day problems in which agricultural interests of this country are vitally interested, it is the desire of the United States Department of Agriculture to secure cooperation and frank suggestions from any and all organizations directly concerned with farm progress, declared Edwin T. Meredith, Secretary of Agriculture, addressing a delegation of 100 farmers who called at the department representing the National Board of Farm Organizations, in session in Washington.

"The industries which this department is designed to serve are of tremendous magnitude and there is no one, I believe, who appreciates this more keenly than the Secretary of Agriculture," said Mr. Meredith. "If we are to serve the farmers of this country, and through them the Nation as a whole, they must have contact with the department and the department with them. Therefore, I am speaking no idle phrase when I say that I want the suggestions which you men and others can give. Frank, honest criticism will be gladly received also. It is by such contact of mind with mind that the best results will be obtained. I want you men to know that whenever you come to this department with suggestions or requests for help we will do all in our power to serve you."

Replying to the Secretary's remarks, on behalf of the visitors, William A. Bowen, editor of the Farmers' Fireside Bulletin, Arlington, Tex., said that he greatly appreciated the frank request for suggestions which the Secretary had given the delegation. He expressed the belief that individual farmers and farm organizations are eager to work with the department, and that they would meet the Secretary in the same spirit the Secretary had manifested.

SPRING MAY BE HARNESSED FOR COOL MILK IN SUMMER

City regulations now require that milk be cooled artificially as soon as it is drawn from the cow. According to specialists in the United States Department of Agriculture, the most simple and efficient method of handling this matter is to harness natural resources on farms having permanent springs that flow throughout the year and do not dry up in the summer. Now is the time to plan this work.

It is essential to pipe the spring water to the dairy house, where it should flow into a concrete tank of size adequate to provide ample space for cooling the maximum production of milk on that farm. The tank should also be provided with an outlet or overflow so that a constant stream of water passes through it. Ingenious farmers may be able to devise some other use for this flow of water during the time when the tank is not needed for cooling milk. Ordinarily the temperature of the spring water in the tank does not get lower than 55° F.

On dairy farms where springs are not available it is customary to use concrete cooling tanks which are insulated with cork and provided with a hinged top, so that ice can be used to decrease the temperature of the water in which the milk cans are placed. Generally these tanks are made in two divisions, so that when most of the cows are dry the smaller compartment can be used for cooling the dairy products, as its use necessitates smaller drain on the ice supply and eliminates the cooling of a large amount of water. When the herd flow is at a maximum both chambers of the cooling tank are used.

Uncooled milk and cream usually result in the production of dairy products of low quality and often of sour milk and cream as well as products of high bacterial content. The investment in cooling tanks, equipped either with spring water or ice cooled, pays heavy interest the year around and is profitable on every dairy farm. Milk of high bacterial content will remain sweet for 12 hours at 100° F; 36 hours at 75°; 80 hours at 55°; and 180 hours at 40°, according to experiments of the United States Department of Agriculture; while milk of low bacterial content kept sweet for 36 hours at 100° F.; 60 hours at 75°; 180 hours at 55°; and 306 hours at 40°.

THE Government guarantees your investment when you buy Treasury Savings Certificates. They come in $100 and $1,000 denominations and will be supplied or obtained by your postmaster or banker. They earn 4½ compound interest when held until maturity, or 3 per cent when used to pay seasonal balances. Each certificate will be cashed immediately upon receipt by the Treasury Department at cost plus 3 per cent interest. (Can not be cashed before second calendar month after purchase.)

The investment for the shrewd and conservative man who does not gamble with his future.

FEDERAL GRADES FOR WHEAT WILL STAY IN FULL FORCE

Federal grades for wheat will not cease to be enforced under the United States grain standards act when the United States Grain Corporation ceases to function. Reports have been received by the Bureau of Markets, United States Department of Agriculture, that farmers and grain dealers in some parts of the country are under the impression that the Federal grades and the Grain Corporation will "go out" together. This rumor may be due to the fact that the grades went into effect at the beginning of the 1917 crop movement, at approximately the same time that the Food Administration Grain Corporation began its control of wheat marketing.

The Grain Corporation was created under a war-emergency law. The law which empowers the Secretary of Agriculture to fix grades was approved August 11, 1916, and is a permanent measure. Federal grades for wheat had been contemplated by the Department of Agriculture for several years prior to the entry of the United States into the war, and a large amount of investigational work had been done toward establishing national wheat standards. The wheat grades would have been established at the time they were even if there had been no war and therefore no Grain Corporation. The grades were promulgated by the Secretary of Agriculture on March 31, 1917, to become effective on July 1, 1917, for winter wheat and on August 1, 1917, for spring wheat, and were revised in their present form, effective July 15, 1918.

Losses and wastes are a heavy tax on food distribution. The prevention of much needless waste would reduce present marketing costs materially.

Eradication of Ivy and Sumac Advocated; Treatment Recommended in Poisoning Cases

The best ways to avoid ivy and sumac poisoning, the most practical means of eradicating these noxious plants, and the most approved method of treating cases of such poisoning have been the subjects of an investigation conducted jointly by the United States Department of Agriculture and the Public Health Service of the United States Treasury Department. Despite general belief there is good reason for believing that absolute immunity from ivy and sumac poisoning does not exist, investigators state. They also found that many common methods of treatment are not to be commended.

Poison ivy is sometimes called poison oak. Poison sumac is also known in various localities as poison dogwood, poison elder, poison ash, thunderwood, and poisonwood. These poisonous plants are widely distributed. While no accurate estimates can be made as to the economic losses resulting from poisoning, the total is very great, and there is urgent need for widespread campaigns to eradicate these noxious plants.

If one must handle these poisonous plants, gloves, preferably of rubber, should be worn. After the gloves have been removed they should be thoroughly washed with soap and water and rinsed several times. Inasmuch as the clothing which comes in contact with the leaves may be a source of infection for a considerable period, care should be taken in changing the garments, and also the shoes. Many cases of poisoning have resulted merely from contact with exposed clothing.

Thorough Washing Helps

One of the surest and best methods of minimizing or preventing infection after the hands, face, or other parts of the body have been exposed, is to wash and rinse them repeatedly with an abundance of good kitchen soap and hot water. The poison, after being deposited on the skin, requires some time to penetrate, and if this penetration can be prevented by thorough washing, eruption and irritation will not result. While exposed parts should be cleansed in this manner as soon after exposure as possible, it is worth while to make the attempt even 12 or 20 hours afterwards in the hope that at least a portion of the poison may be removed. A heavy lather should be produced and the washing should be continued several minutes. Severe scrubbing with a brush is not advisable, but several swabs or small compresses of gauze may be used, discarding each in turn, so that the poison may not be distributed by the cloth.

Bathing with alcohol diluted with an equal amount of water is also an effective preventive. Where exposure has been more general, a bath for the entire body, followed by a change of clothing, is a good preventive measure. The hair should not be neglected. Bathing, if not accompanied by sufficient changing of water or rinsing, may result in spreading the rash to skin that had not been infected. In cases that are at all serious a physician should be consulted.

Sugar of Lead Not Recommended

The investigators call attention to the fact that scores of remedies and prescriptions are more or less in popular favor, but in spite of the claims they assert that no specific treatment for poisoning from ivy and sumac is yet available. Ointments should not be used in the acute stage of the disease. In the later stages, however, soothing and astringent ointments may be of value in allaying irritation and hastening cure. The extent to which it is desirable to use solutions of permanganate of potash, hyposulphite of soda, sulphate of magnesium (Epsom salts), and other remedies, is also discussed. Sugar of lead, formerly much used, often proves disappointing if applied after inflammation has developed, and the user runs the risk of lead poisoning if this substance is applied extensively.

The names "poison oak" and "poison ivy" are used interchangeably in many localities. The plant generally known as poison oak throughout the Pacific coast occurs as a bush, sometimes 4 or 5 feet high, and has leaflets resembling the leaves of the western oak, but it is also found as a vine, and is sometimes called poison ivy.

In the East from New Jersey, Delaware, and Virginia southward the name "poison oak" is often used to distinguish from the poison ivy vine, a form occurring as a bush with lobed leaflets, a little resembling the leaves of scrub oak. Westward from Minnesota, Nebraska, and Arkansas to Washington, Montana, Colorado, and New Mexico this name is applied to a low bush or trailing shrub which does not climb. The leaves of all forms have stout, rather long stems bearing three leaflets, two of which are opposite and short stalked, while the third has a long stalk. The leaflets are from 1 to 4 inches long, dark green on the upper surface, lighter (sometimes with a velvety covering of fine hairs) underneath, with smooth or somewhat indented margins.

In the Eastern States and westward as far as Wyoming to Texas the Virginia creeper is found generally in the same location as poison ivy vine, which it resembles somewhat in its habits and the shape of its leaflets; but it can be readily distinguished from poison ivy in that its leaves are divided into three to five leaflets to the stalk. Moreover, though it is sometimes supported by aerial rootlets, like poison ivy, it also has numerous tendrils like those of the grape vine, and its inedible fruits are blue, with red stems, and contain two or three seeds.

How to Recognize Poison Sumac

Poison sumac grows in moist ground, usually in swamps or along low, miry banks of streams and ponds. It occurs from New England to Florida, and westward to Minnesota, Arkansas, and Louisiana. The poison sumac leaves are readily distinguished from the harmless sumac and species of ash, elder, and other shrubs and trees, having a somewhat similar foliage, and the character, appearance, and color of the fruits furnish other simple means of identification. Furthermore, the poison sumac occurs on moist or swampy land, and in drier locations is found only along the borders of swamps or bogs. The number of leaflets into which the leaves of the harmless sumacs are divided range from 9 to 21 and 31, while the poison sumac leaves divide into 7 to 13 leaflets.

While many persons are of the opinion that contact with these plants is not necessary to produce poisoning, it is probable that many cases supposed to have originated in this way have actually been due to direct or indirect contact. There are cases on record showing that the smoke from burning plants will give rise to irritation, and in some cases severe poisoning has resulted from this form of exposure. Regarding the popular belief that some persons are wholly immune, the investigators state that there is good reason to believe absolute immunity does not exist, although it is recognized that some persons are much less susceptible than others.

How to Eradicate Poisonous Plants

Eradication of these plants should be widely undertaken and followed up systematically. Every landowner should feel a measure of responsibility in this

matter. The simplest method is by grubbing, in which care should be taken to cover the hands properly, and also to prevent infection by means of the clothing.

The plants in fields may be destroyed by plowing them up and putting in cultivated crops. Often repeated mowing is also effective. The use of kerosene is recommended where injury to other plants or trees is not to be feared. It may be applied with a sprinkler or a spraying pump, and in many cases one application is sufficient. Arsenate of soda has been used very successfully to kill poison ivy on trees 6 to 10 inches in diameter without injury to the trees, as well as on stone walls, buildings, and along fences.

HELP BUYER MEET SELLER OF PUREBRED LIVE STOCK

(Continued from page 2.)

During the past year many breeders have expressed a desire to enter the foreign field, but very few American breeders have been foreign traders in the past and a large amount of information is necessary before shipments and proper contracts can be made which will assure success in the undertaking.

Developing Foreign Trade

In view of this fact the United States Department of Agriculture has taken steps to assist in developing foreign trade in purebred live stock. An attractively illustrated booklet printed in both Spanish and Portuguese, showing the types and location of our American breeds, together with the guarantees offered by the United States Government against disease, was published and distributed in South America. Detailed personal investigations of conditions in South American countries and Europe have been made during the past year by representatives of the Bureau of Markets, and now, from time to time, buyers from those countries are coming to Washington and requesting assistance. On this account it is necessary that the Washington office of the bureau know what organizations are prepared to handle foreign trade and what State or States can offer most desirable stock, shipping facilities, and detailed service. It is quite apparent that buyers from South America need direct assistance, and it also is important that such assistance be efficient and given promptly without charge. All matters must be handled by parties in which the seller, as well as the buyer, has confidence. The seller must also appreciate the value of future trade and not place a prohibitive price on his animals if he expects to make a sale.

Business methods in the United States are quite different from those in South America, and all assistance given South American buyers will be greatly appreciated because it will help to reduce the cost of importing animals into their country. This, of course, is an important matter, since the buyer naturally will purchase his stock from countries where he can buy the cheapest, other conditions being equal. Since many of the Governments of the South American countries subsidize the importation of live stock the breeders and farmers naturally expect the United States Government to give assistance when they come to this country to buy.

The county live-stock association which keeps definite, complete, and up-to-date information on file, and makes this fact known to the State field agents in marketing and the Washington office of the Bureau of Markets, will render a much-needed service to its members, the live-stock industry as a whole, and to foreign buyers who come to this country for purebred animals to improve their herds.

Making Cheese in Southern Mountains Brings Profits Where Cash Was Scarce

Five years ago an extension man of the Dairy Division, United States Department of Agriculture, found only three cheese factories in the southern mountains, and all of these were in one State—North Carolina. Impressed with the possibilities that the country offered for cheese making, the Dairy Division aided in developing the industry, and recent reports show that there are now 52 factories in operation.

These mountain regions were found to be especially well adapted to the making of cheese. The cool nights and the mountain springs, furnishing an abundant supply of cold water, make it possible to keep the milk sweet and in proper condition for cheese making.

Help in Factory Construction

To develop the industry it was first necessary to organize the communities and assist in the construction of factories. The training of cheese makers presented another difficulty. In most cases local men were trained by dairy specialists who instructed each man personally. At first some difficulty was encountered in obtaining from the farmers a sufficiently high grade of milk for cheese making, and dairy specialists made frequent visits to the factories to see that the milk used was of good quality and properly cared for and that the cheese was kept up to standard. The fact that a uniform cheese of standard quality is produced in all the factories has made it possible to sell these products in large quantities, and this factor has undoubtedly contributed much to the success of the industry.

American Cheddar is the variety made in all the factories, and samples exhibited at the National Dairy Show attracted considerable attention. The scores received indicate that the cheese was of good quality.

Brings in Ready Cash

Probably in no instance has dairying proved more beneficial than in these mountain districts. Formerly little was produced that could be marketed for cash; the cheese industry, however, is bringing money into the country. Many dairy cows also have been brought into these regions as a result of the market created for milk, and the coming of the cows has greatly stimulated the use of dairy products in these communities.

FRUIT TREES GOOD INVESTMENT

The ordinary individual craves a certain amount of fruit in his diet. On the average farm fruit constitutes only about 6 per cent in value of all food consumed. This percentage could be increased to good advantage, making fruit a more important part of the diet, says the United States Department of Agriculture.

Many farmsteads include fruit trees and grape arbors as a part of the planting scheme around the dwelling. A small area of the farm devoted to apple trees, peach trees, berry plants, or other fruit suited to the region, is a good investment for any farmer. About two-thirds of the fruit consumed by the average farm family is produced on the home farm.

Federal Grain Supervision announces that Decatur, Ill., has become an inspection point. Two inspectors have been licensed to inspect wheat and shelled corn there.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Kill Millions of Barberry Bushes.

Approximately 2,000,000 common barberry bushes were dug up and destroyed during 1919 in connection with the combined efforts of Federal and State authorities to protect wheat against black stem rust which can not survive unless it is able to spend one period in its life cycle on the leaves of the common barberry. For this work the past year the Federal Government appropriated $150,000. The territory in which the fight was carried on comprises Colorado, Indiana, Illinois, Iowa, Ohio, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming, which States supplemented the Federal funds to a considerable degree. The combined expenditures were small in comparison with the size of the menace to wheat production by this disease. Cereal disease experts in the United States Department of Agriculture estimate that the wheat crop of 1919 in the United States was reduced 53,000,000 bushels by black stem rust alone in addition to damage by scab and other diseases. This damage by black stem rust has only been exceeded in one previous season, namely in 1916, when the total reduction of the wheat crop by this disease was 200,000,000 bushels. In addition to the 1919 loss of 53,000,000 bushels of wheat due to ravages of black stem rust, there was a loss of 17,400,000 bushels of oats and 4,700,000 bushels of barley due to the same cause.

Extension Work Pays Tenfold.

Impressive results from the application of science to practical agriculture are shown in a report recently given to the county commissioners of Idaho regarding the extension work in that State for 1919. A saving of $10.27 for every dollar expended in the extension activities was made. The total expenditure was $274,509, including the amounts the counties provided from their own funds and the money received from State and Federal sources. The savings resulting directly from this outlay were figured at $2,820,217.

In all more than 2,100 demonstrations were held during the year and were attended by more than 22,000 persons. In calculating the savings indicated above only the increases resulting directly from these demonstrations are included, no account being taken of the large benefits arising from the spread of information to farmers not sharing in the demonstrations.

The great variety of subjects treated by the agricultural experts is shown by the following items selected from a summary of their work: Demonstrations relating to seed testing, corn for silage, control of smut in wheat and in oats, potato variety demonstrations, alfalfa variety demonstrations, orchard spraying, cow testing, control of rodents, cooperative purchasing and marketing, poultry culling, eradication of hog cholera, drainage and irrigation demonstrations, use of fertilizer, and feeding of live stock.

Marketing the Muscadine.

Did you ever eat muscadine marmalade? Or drink muscadine grape juice? Well, a great many people haven't, either, although the muscadine was growing over the Southeastern coastal plains when the white man came and has grown there ever since. Its products are among the most delicious made from any grape. Here is a recent proof of that. Just before Christmas the dining car superintendents of three of the largest railway systems in the South secured, with the aid of the United States Department of Agriculture, a quantity of home-made muscadine grape products. The patrons of the dining cars exhausted them in just one-third the time that it was thought they would last, and the superintendents telegraphed rush orders for additional supplies.

That muscadine grape products are coming into the popularity they deserve is due to the work of the home demonstration agents and specialists of the United States Department of Agriculture and the State agricultural colleges. The girls and women of the States where muscadine grapes can be grown are not only utilizing the grapes already available but are establishing and cultivating many home vineyards, with the purpose of making for home use and for market standard jellies, marmalades, juices, and the like. Many women and girls are adding materially to their income by the sale of these juices.

Cows Lead All Farm Animals.

The expansion which has been taking place steadily in the dairy industry of this country during the last seven years has at last put milk cows at the head of the list of farm animals so far as value is concerned. This is shown by a recent report by the Bureau of Crop Estimates, United States Department of Agriculture. The value of these animals now exceeds that of horses and cattle other than milk cows, the two classes formerly standing higher on the list. On January 1 of this year there were approximately 23,747,000 milk cows in this country, an increase of 272,000 head, or 1.2 per cent, as compared with a year ago. Their aggregate value is placed at $2,021,681,000.

Ten years ago the average milk cow was worth $35.29, compared with $78.20 a year ago and $85.13 January 1, 1920. It is generally recognized that the quality of the milk cows of this country is improving at the same time that their number is increasing.

The class of cattle, consisting of calves, steers, bulls, and cows, not kept for milk production and designated as "other cattle," shows a decrease of 700,000 head, or 1.6 per cent. Ten years ago the average value per head of animals in this class was $19.07, a year ago it was $44.22, and $43.14 this year. The number of "other cattle" in the country at the present time is approximately 44,385,000, and their value $1,914,575,000.

Inspectors Aid Big Butter Exporter.

An illustration of the important service which inspectors of perishable food, representing the Bureau of Markets, United States Department of Agriculture, are able to render exporters, is found in the work recently done in connection with the shipment abroad of 4,000,000 pounds of butter. This butter was destined for one of the European countries, but because previous uninspected shipments had not come up to specifications, the exporting house, to protect itself against further complaints, requested United States Government inspection. This insured delivery of butter of the quality called for in its contracts. The Bureau of Markets' inspectors were called on to certify the grade of the butter which was held in Minneapolis, Chicago, Boston, Philadelphia, and New York warehouses. These are the points at which butter inspectors are regularly stationed.

The inspections were made as requested, and such lots as did not come up

to the stipulated score were withheld, while the rest was started on its way. From this incident it appears that Federal inspection certificates are proving of value to exporters, since they guarantee that the shipments concerned fully meet specific requirements—an important factor in promoting foreign trade relations. Likewise, the industry as a whole benefits from Federal inspection because through it the produce obtains favorable standing in foreign markets.

Immunity to Hog Cholera Lasting.

A series of recent experiments on duration of immunity to hog cholera following simultaneous inoculation of young pigs supports the conclusion that the protection is lasting. The investigations were conducted at Ames, Iowa, by specialists of the United States Department of Agriculture.

Altogether 171 pigs, inoculated when a week to six weeks old and exposed to hog cholera, at times varying from 5 months to 9 months and 26 days later, were found without exception to be immune to that disease.

Three of the pigs, however, died during the period of exposure from causes other than hog cholera.

There was no apparent ill-effect from the simultaneous inoculation in any of the pigs.

There was no difference in the immunity of pigs from immune and nonimmune sows.

Pigs that were approximately one week old received 10 cubic centimeters of anti-hog cholera serum and ½ c. c. of virus. Pigs that were three weeks old or more received from 15 to 20 c. c. of serum and from ½ to ¾ c. c. of virus.

Immunity was tested by injecting 5 c. c. of virus into the animals when they had attained weights exceeding, in many cases, 200 pounds. None of the hogs contracted cholera. The experiments appear to disprove assertions by some observers that simultaneous inoculation of young pigs is not lasting and that immunity disappears at stages of growth variously placed from weaning time up to 50 or 60 pounds in weight.

Mineral Matter and Milk.

Experiments conducted by the Bureau of Animal Industry, United States Department of Agriculture, with dairy cows are showing an important relation between milk secretion and certain mineral substances. Feeding compounds of phosphorus and calcium have resulted in a decidedly beneficial effect on the milk flow in both quantity and fat content.

It has been shown also that a deficiency of phosphorus in dairy rations has a detrimental effect on milk secretion of cows and growth of calves. A remedy was found in the addition of sodium phosphate to rations deficient in phosphorus. The work is being continued.

Good Poultry from Mongrel Hens.

Noteworthy success is reported by the United States Department of Agriculture in grading up mongrel flocks of poultry by the continued use of males of pure breeding. During the last fiscal year, according to a statement of the Bureau of Animal Industry, the third generation of Barred Plymouth Rock grades showed marked uniformity in color and type, and White Plymouth Rock grades showed much improvement, but did not all come pure white in color. In both kinds of grades individuals occurred which so closely resembled stock of pure breeding that it was impossible to tell the difference by their appearance.

Club Work Helps Boys Win.

Club work and club associations put something into the blood of farmer boys that helps them win, say those familiar with the records of members. In Kent County, Del., the farm bureau last year adopted "One thousand members for 1920" as its slogan and assigned to each neighborhood the number of members it was to obtain. Houston community was the first to exceed its quota of 40. It obtained a total membership of 51. The relationship of club work to this record lies in the fact that 26 of the members were obtained by one farm lad who began his club work in 1915. As a reward for his efforts this boy will have his expenses paid to attend the Delaware College short course. At the last State fair this club member's Holstein heifer won a blue ribbon, and out of 11 entries in the grain and vegetable section he captured 10 first premiums, one third, and a State championship.

Large Cows Excel in Yield.

Cow-testing records based on 38,532 dairy cows from 110 cow-testing associations are being analyzed by specialists of the Dairy Division, United States Department of Agriculture. The tabulations have brought out a number of interesting relations between milk production, butterfat test, butterfat production, and income over cost of feed. The larger cows excelled the medium and small cows in production of both milk and butterfat.

The average annual milk production of all the animals was 5,936 pounds per cow, and the average butterfat production 246 pounds. These figures are considerably larger than the average for the United States, indicating that dairymen who are members of cow-testing associations either dispose of their poorest cows or else make them more profitable by better feeding and handling.

Cottonseed Meal for Work Stock.

One pound of cottonseed meal per day for each 1,000 pounds live weight is the most satisfactory quantity to feed work animals, according to recent experiments conducted by the United States Department of Agriculture. A test in feeding cottonseed meal to work horses and mules at the Government farm, Beltsville, Md., was begun in 1918, and continued last year. When the meal was fed in large quantities harmful effects were apparent, however, indicating that cottonseed meal, like any other high-protein feed, must be fed with care to horses and mules.

MUCH PRIZE MONEY WON BY KANSAS CLUB MEMBERS

Kansas boys and girls who belong to clubs organized by the United States Department of Agriculture and the State agricultural college won more than $4,500 in prize money and in other ways at the three State fairs—at Topeka, Hutchinson, and Wichita—last fall.

The spirit that accomplished this is well summarized in the following verse of a club song popular in that State:

Just buckle in with a bit of a grin,
Then take off your coat and go to it,
And start in to sing, as you tackle the thing
That couldn't be done—and you'll do it.

The Kansas boy and girl club members last year started out with the determination to win honors at the State fairs. With superior work and good judgment in selecting exhibits these junior farmers walked away with $3,248 in prize money. Of this amount $800 was won by the demonstration teams in canning and bread making, $50 by the live-stock judging teams, $1,115 by club exhibits, and $1,283 by individual members. An average of $3 prizes apiece for individual work was won by the club members who exhibited at the three State fairs.

Some of the honors were in the form of future pleasure and profit. For instance, the clubs doing superior work were each awarded a $25 club prize to use in financing trips to the State agricultural college during farm and home week in February of this year.

The Wichita Chamber of Commerce gave a banquet at the close of the fair season to the 12 demonstration teams in canning and bread making at the international wheat show.

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PINK BOLLWORM THREATENS COTTON INDUSTRY IN U. S.

Seed Widely Distributed from Newly Found Infested Area in Louisiana

Unless Radical Steps are Promptly Taken Worst Known Pest of Cotton Will Get Out of Hand

The pink bollworm of cotton, previously supposed to exist i this country only in Texas, has been discovered at a number of places in Cameron Parish, La., where it is believed to have been for at least two years. It has been found also in Calcasieu Parish, but so recently that definite information as to distribution is not available. The old infested area around Trinity Bay has also been somewhat extended. Lots of cotton seed ranging from 1 to 20 cars have been shipped from Cameron Parish to Alexandria, Broussard, Shreveport, Bunkie, and Monroe, La., San Antonio, Fort Worth, Houston, San Marcos, and New Braunfels, Tex. Several of these points have no oil mills and the seed was probably used for planting. Thus, there is the possibility that the pink bollworm has been scattered to all of these sections and possibly to others not yet determined.

This brings about a serious situation for the cotton industry of the United States, says the United States Department of Agriculture. Unless the radical but necessary steps are promptly taken by the States concerned in cooperation with the Federal Department of Agriculture, the pink bollworm will certainly get out of hand and the work of extermination already carried out in Texas will be lost. Congress has been asked to provide additional funds and to make them immediately available.

Conference to Plan Work

A conference was held in New Orleans on March 5, which was attended by representatives of all the cotton States and of the Department of Agriculture. The conference was called by Gov. Pleasant, of Louisiana, in cooperation with Governor-elect Parker, who is president of the American Cotton Association. The purpose was to consider the whole situation as it has now developed and to secure the taking of necessary steps by Texas and Louisiana and any other States concerned to meet the emergency.

The newly discovered infestations in Cameron and Calcasieu Parishes, La., and Orange County, Tex., are along the lower course of the Sabine River, near the Gulf of Mexico. In addition, there is some reinfestation of the old Trinity Bay area in Texas, but the work of recleaning that area has almost been completed. The work, however, has consumed practically all the money that the United States Department of Agriculture had available for pink bollworm eradication. Reinfestation around Trinity Bay was due to a modification of the policy originally agreed upon by the department and State authorities of allowing no cotton to be grown in infested areas for a period of two or three years.

> **TRY CLOVER AGAIN**
>
> **Have you stopped growing clover? If so, why not try again? Lime, in most cases, will insure success.**

A revision of the State pink bollworm act permitted cotton to be grown, under restrictions, in the Trinity Bay area during 1919. The reinfestation which has resulted from such growth of cotton is scattered pretty well over the old district, but the actual points of infestation are very few as compared with 1917, and the amount of infestation in the fields where the insect has been found is insignificant as to numbers. The results clearly indicate, say the specialists of the department, the possibility of extermination by the method of establishing noncotton zones and the cleaning up of all volunteer cotton if continued for a sufficient period. It was deviation from this method that brought the reinfestation in Texas, and the department will insist that it be strictly followed in the tremendously greater task that now confronts the country. "This is the only means of control," says the department, "that gives any hope of ultimately eradicating this most destructive pest of cotton, and the success of the work must

(*Continued on page 6.*)

GRADES FOR RICE PROPOSED; PUBLIC HEARINGS SCHEDULED

Slight Changes in Former Permissive System for Milled Product

Final Standards to Be Enforced Under Grain Standards Act; Suggestions Invited from Growers and Others

Proposed Federal grades for milled rice grown in the continental United States have just been published by the United States Department of Agriculture. Before these grades are adopted public hearings will be held by the Chief of the Bureau of Markets, and growers, handlers, millers, and others interested are invited to be present and make suggestions. These suggestions will be considered by the Secretary in finally fixing official standards hereafter to be enforced by the department under the Grain Standards Act.

The idea of Federal grades for milled rice is not new to the rice industry. In September, 1918, the department published a set of permissive standards which was adopted by the United States Food Administration and afterwards by various boards of trade and other grading agencies throughout the United States, but the grades were never enforced under the Grain Standards Act. However, they were the first standards in the United States which embodied definite factors of grading and are now in use to a great extent in the trade.

The public hearings will be held at Charleston, S. C., on March 10 at 9 a. m., Charleston Hotel; New Orleans, La., March 12, 9.30 a. m., St. Charles Hotel; Beaumont, Tex., March 13, 9.30 a. m., Crosby Hotel; San Francisco, Calif., March 17, 9 a. m., Chamber of Commerce; Chicago, Ill., March 22, 9 a. m., Fort Dearborn Hotel; Cleveland, O., March 23, 9.30 a. m., Statler Hotel; New York, N. Y., March 24, 10.30 a. m., 942 Woolworth Building.

Changes from Permissive Standards

Some changes in the permissive standards have been made—changes in defini-

tion, terms, and grade requirements—to conform to the results of the application of the permissive grades, further investigations of the department, and comments received from members of the rice trade. Among these are the following:

In the names of the classes in the standards the designation "Long" has been substituted for "Honduras," "Medium" for "Blue Rose," and "Short" for "Japan;" while a new class, "Medium-Opaque," has been provided to include the opaque type of the Early Prolific variety of rice. The translucent type of this variety will be graded along with the varieties Blue Rose and Louisiana Pearl. These class names are a departure from common expressions in the rice trade. The former designations were names of specific varieties, but included other varieties for the purposes of the standards.

To include several varieties of rice under the name of one variety might result in confusion, the experts of the department believed. The original grades classified all Early Prolific rice with Blue Rose and Louisiana Pearl. On account of the opacity of some lots of Early Prolific this type has been placed in a separate class. In this way it may be graded as any other class and opacity will in no way cause it to grade down, as was the case when it was included with Blue Rose and Louisiana Pearl, as provided in the former standards published.

Numbers Designate All Grades

In the original standards only the class Honduras contained a grade known as Extra Fancy. This grade has now been placed in all the classes and is represented by the designation "No. 1." All the grades are now designated by number instead of by name. Thus, the grades Nos. 1, 2, 3, and 4 are equivalent to and representative of the former terms Extra Fancy, Fancy, Choice, and Medium.

Previously it was required that Second Heads be rice of the long-grain varieties only. Second Heads may now be any kind of broken rice so long as the sieve specifications as set forth in the printed standards are met.

Mixed milled rice is determined only by the whole kernels in a sample. No attempt is made to separate the broken particles according to varieties or classes. Mixed milled rice, therefore, can consist of only the classes Long, Medium, Medium-Opaque, and Short—the whole-kernel classes. Should a mixture occur of any of these classes and the Second Head and Screenings classes the result is a lower grade under one of the whole-grain classes.

A copy of Service and Regulatory Announcements, Markets, No. 59, which contains a detailed description of the proposed Federal rice grades may be had by writing the department at Washington, or by writing any office of Federal Grain Supervision.

Bankers' Backing Needed by Farmers, Financial Help is Seldom Hazardous

"Your invitation to express through your publication my ideas of how the bankers of the United States can contribute to the cause of agriculture gives me the opportunity to say that no class of business men have a more vital relation to the prosperity and stability of the farming industry than do the bankers," said a recent letter from E. T. Meredith, Secretary of Agriculture, to a bankers' magazine.

"The foresight and sympathetic interest of the bankers have played an important part in the advance of agriculture in this country, and they are in position to render even more helpful cooperation in the future. So long as the farmer must contend in his business with the elements of chance, he must be supported by the confidence that back of him is his banker, ready and able and willing to come to his aid in time of drought, flood, storm, insect visitation, or other misfortune.

"Help from the banker in such times of stress is seldom particularly hazardous for the banker. Droughts may come in two or more successive years, and army worms may follow a cyclone, but the land will always be there and continue to produce. There is no greater certainty of permanency or ultimate return in any industry. This is a point that should be more generally appreciated by bankers. Bankers should also have constantly in mind that whatever is done for better farming inevitably must react to the benefit of the banker and all business. The banker as well as the farmer will draw dividends from good roads, better schools, more ample marketing facilities, better rural living and social conditions, more labor-saving machinery, better supplies of farm labor. These things mean prosperous and contented farmers, whose production year after year is the basis of prosperity in the individual community and in the Nation at large.

"The farmers are ready to do their part in what must be a cooperative effort to reduce the cost of getting farm products from the producer to the consumer. No business men should realize better than the bankers that any reduction that may occur in the farmer's returns should be preceded, or at least accompanied, by corresponding reductions in the prices of the things the farmer must buy.

"Bankers, and all other business men as well, should interest themselves in the problems of the farmer and aid him in securing facilities needed in his business. They should not countenance the assault now being made on the farm loan bank system, which enables the farmer to secure money on favorable terms without commissions or renewal charges, finances him to carry on the fundamental activity of our country, and makes provision for long time payments that he may plan ahead where necessary. The withdrawal of this aid to farmers would, in my judgment, be a blow to agriculture in America and be harmful to the country as a whole. There is a common interest of bankers and farmers in this system. Federal farm loans encourage a landowning, prosperous farm citizenry in this country. That is the kind of farmers the banks, whose chief business it is to provide the personal credit and working capital, desire for their customers.

"The Department of Agriculture is doing all in its power to improve agriculture, to make it profitable, and to bring about a more satisfactory rural life in all its phases. In the prosecution of its activities it seeks and earnestly desires the cordial and sympathetic cooperation and support of the bankers and other business men of the Nation, as well as of the farmers, agricultural institutions, and farm organizations. It is very gratifying to know that in this it has the active assistance and cooperation of the American Bankers Association."

FAVORS "KEEPING-FIT" CAMPAIGN

"I am keenly interested in the Keeping-Fit Campaign which the United States Public Health Service is conducting for the purpose of building up the health and strength of the boys of our Nation," said E. T. Meredith, Secretary of Agriculture, in a recent statement. "It is a very worthy effort and deserves the heartiest commendation. I am sure the agricultural journals, through their columns, will gladly cooperate with the service in making the campaign effective in rural communities."

Beet-top silage comes out of the silo warm in the winter, and it is appetizing. It seems to stimulate the assimilation of food and to aid the animal to appropriate the maximum values from all the feeds consumed.

How to Get and Keep a Clover Stand; Most Poor Soils Due to Lack of Lime

Everybody will admit that clover is needed on the farm, on practically every farm in the clover belt. But by no means every farm has clover and there are extremely few farms on which there is as much clover as there should be. Why? Because clover so often fails to make a good stand and to carry well to a crop. Farmers have become discouraged. Putting good money into seed and then losing the seeding is discouraging. Especially this year, when it will cost around $6 an acre for seed alone, farmers will hesitate. What can be done about it? Given good seed and good soil conditions a stand is reasonably sure. Only an unusual season, especially a dry one, will kill a stand under such conditions, United States Department of Agriculture specialists declare. Good seed can be bought and good soil conditions can be made, at least to a certain extent.

Lime the Land for Clover

The need for a good seed bed and for careful seeding has been referred to in the Weekly News Letter. A loose seed bed will dry out. Make it firm. Careless seeding wastes seed and the young plants that do start do not have a chance. Put every seed where it will start and where the tender seedling will find favorable conditions. But more is needed. Clover needs lime more than almost any plant except alfalfa. Roughly speaking, nearly three-quarters of the cultivated land from the Atlantic to Iowa and from Tennessee to Canada either never had lime enough or has lost it in the course of years of cultivation. Therefore, the lime needed must be put on the land.

Exactly what lime does in the plant or in the soil is still disputed, but it is known that clover must have it, that it will not thrive on land from which it can not get lime. Clover also needs other things, phosphorus, potash, sulphur, and where these are known to be lacking they must be given or clover will not thrive even if the soil is well limed. But there is no one element so generally wanting in the soils of the clover belt as lime and, therefore, the emphasis is placed on this element. On farms where clover did well 30 years ago but fails now the chances are largely in favor of the assumption that lime is needed.

The Pennsylvania experiment station found that where the lime requirement of the soil was 1,500 pounds an acre clover would not grow; at 1,000 pounds it grew poorly, but when the lime requirement was less than 500 pounds an acre a good crop was secured. The Ohio station found that lime more than doubled the yield of clover. The Indiana station found at various substations that lime in addition to manure increased the clover crop in some cases as much as 50 per cent. The addition of acid phosphate still further increased yields. In Tennessee the station found that on certain soils clover would not grow at all without lime but that with lime it did well. On Wisconsin sandy land the limed plat yielded nearly a ton of hay while on the check plat clover failed. Many more examples could be given.

Clover a Failure? Try Some

The best time to apply lime is when land is being prepared for wheat in fall. It should be spread on the plowed ground and harrowed in. Liming corn land that is to be followed by a grain crop with clover is also good practice. If lime is badly needed it may be spread on the winter wheat this spring and lightly harrowed in. It will not be as effective as if it had been put on last fall but it will help some. If clover is to be seeded with a spring grain crop, lime can be applied when preparing the land for this crop.

CLOVER ON WORN LAND

On worn or poorly drained land use Alsike clover.

It will do better on such land than red, and less seed will be needed.

How Much Lime to Apply

The precise amount of lime to use in each case can be determined only by chemical means, and the various methods for determining the lime requirement of soils do not always yield uniform results. For the farmer the response of the clover crop is the best test. By liming a field at 2 or 3 rates and leaving a strip unlimed the farmer can get clover to tell the story itself. As a general rule, which is useful as a starting point, 2 tons of ground limestone or 1 ton of burnt lime an acre will put most land in shape to grow clover.

When to Use Alsike and Sweet Clover

There are many farms on which it is not practicable to haul lime. In such cases alsike may be used, alone if the land is low and poorly drained, or mixed with red clover on the average worn farm on which red clover often fails. Alsike will not yield as well as red clover will under favorable conditions but it will catch and make something on many soils on which red clover would fail. It will stand a "sour" soil better than red clover will.

Sweet clover will not thrive without lime. There is no use trying it. But given lime it will grow on poorer land than any other clover will and will do more than any other crop to improve such land. Sweet clover can be handled in a rotation the same as red, the seed is cheaper and in many places it may well take the place of red clover while the latter seed is so expensive. For full information about the culture of sweet clover ask the United States Department of Agriculture for Farmers' Bulletin 797.

CIVIL SERVICE EXAMINATIONS

Open competitive examinations for veterinarian, salary $1,500 a year, and lay inspector, Grade 1, at $1,080, a year, are announced by the United States Civil Service Commission, to fill vacancies in the Bureau of Animal Industry, Department of Agriculture. Dates of examinations, April 7, May 5, and June 9, 1920. Applicants should apply for application form, stating the title of examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for physical laboratory helper, to fill vacancies in the Departments of Agriculture and Commerce, for duty in Washington, D. C., or elsewhere, at entrance salaries ranging from $600 to $900 a year. Dates of examination April 7, May 5, and June 9, 1920. Apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

BUILDS PLACE FOR STOCK SALES

The building of a live-stock sales pavilion in Clark County, S. Dak., places this county among the foremost live-stock counties in the State. Only a few years ago it was primarily a grain-growing county. Nine purebred sales have already been booked for this spring.

Two years ago the need was felt for some building in which live-stock sales might be held. The county agent crystalized this sentiment into the organization of the Clark County Sales Pavilion Corporation.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

SHIPS MADE AVAILABLE FOR IMPORTING NITRATE

Indications are that enough Chilean nitrate will reach the United States to meet the nitrate requirements of American farmers for this season. The limiting factor was lack of tonnage to bring the nitrate to American ports. The Department of Agriculture, on February 7, placed before the Shipping Board the necessity for prompt action in making such tonnage available. A conference was held on February 11 between the Shipping Board and representatives of principal nitrate concerns and an agreement was reached under which the board agrees to furnish prompt requisite tonnage covering the period from now until July 1. After that date, according to the agreement, importers will submit their sales on the first of each succeeding month and the Shipping Board will enter into further engagements to supply the required tonnage.

Deliveries will be somewhat delayed for February and March, but nitrate concerns believe that they will now be able to handle April, May, and June arrivals in such way as to clear up all deliveries that are behind and to take care of the forward business in good form. Indications are that importers will make deliveries in accordance with contract, subject to some possible delay during the next few weeks.

HEAVY WOOL CONSUMPTION INDICATED FOR THE YEAR

The present year promises to establish a record for wool consumption, if the amount consumed in January is an indication. According to figures of the Bureau of Markets, United States Department of Agriculture, 72,700,000 pounds of virgin wool, grease equivalent, were consumed by manufacturers in the United States in January, compared with 38,200,000 pounds for the corresponding month in 1919 and 65,100,000 pounds in January, 1918.

The amount consumed was more than the monthly average for either 1918 or 1919 and higher than any month since May, 1918. The largest percentage of wool used was fine, which has a high grease content and is, no doubt, partially responsible for these high figures. At the same time it continues to reflect the public's insistence for fabrics composed of fine wools, the consumption of fine wool being the largest reported for any month since the inauguration of the monthly wool consumption report by the Bureau of Markets.

The percentages of grades used are as follows: Fine, 33 per cent; ½-blood, 18 per cent; ⅜-blood, 17 per cent; ¼-blood, 17 per cent; low, 3 per cent; carpet, 11½ per cent; and grade not stated, one-half of 1 per cent.

HIDES AND SKINS STOCKS LARGER THAN A YEAR AGO

Holdings of hides and skins on January 31 were much larger than on the same date last year, but less than on December 31, according to the monthly report of the Bureau of Markets, United States Department of Agriculture.

Compared with a year ago, increases were: Buffalo skins, 993 per cent; whole horse fronts, 506.7 per cent; kid skins, 277 per cent; horse hides, 217.1 per cent; cabretta, 213.6 per cent; goat skins, 203.1 per cent; horse butts (pairs), 155 per cent; kangaroo and wallaby, 123.3 per cent; kip skins, 87.3 per cent; sheep and lamb skins, 28 per cent; calf skins, 21.3 per cent; and cattle hides, 10.6 per cent. The only decreases shown were horse shanks, 59.8 per cent, and pig and hog skins (pieces), 54.6 per cent.

Compared with December 31, 1919, pig and hog skins (pieces) showed a decrease of 52.4 per cent; whole horse fronts a decrease of 45 per cent; calf skins, 25.8 per cent; goat skins, 19.6 per cent; kip skins, 14 per cent; and cattle hides, 10.9 per cent. Increases included deer and elk skins, 38.9 per cent; pig and hog strips (lbs.), 33.3 per cent; kid skins, 23.2 per cent; and buffalo skins, 15.1 per cent.

Total holdings for January 31, 1920, were: Cattle hides, 6,549,550; calf skins, 1,570,718; kip skins, 965,336; horse hides, 277,626; horse fronts (whole), 110,778; horse butts (pairs), 317,311; horse shanks, 53,811; kangaroo and wallaby, 788,479; deer and elk, 237,477; goat, 12,849,532; kid, 926,677; cabretta, 1,887,026; sheep and lamb, 8,763,643; buffalo, 488,224; pig and hog skins (pieces), 75,405; and pig and hog strips (lbs.), 1,586,271.

BROOM CORN, INDIAN CORN, AND OTHER PLANTS BARRED

Broom corn for manufacturing purposes may be imported hereafter only under permit and when its condition is such that it can be satisfactorily disinfected at port of entry, under a quarantine placed by the Secretary of Agriculture, effective February 21, 1920. Indian corn and certain related plants from all foreign countries are denied entry into the United States in the raw or unmanufactured state, except sorghum hay from Canada and the shelled or thrashed grain, from any country, of the plants included in the quarantine. The quarantine applies, in addition to broom corn and Indian corn, to such related plants as sweet sorghums, grain sorghums, sugar cane, Sudan grass, Johnson grass, pearl millet, Napier grass, Teosinte, and Job's-tears.

The necessity for such a quarantine was demonstrated a week or so ago by the discovery of living larvæ of the corn borer in some 97 bales of broom corn shipped from Italy to New York, the first considerable shipment of foreign broom corn since the war period. It has been definitely determined that the European corn borer, now known to exist in Massachusetts, New Hampshire, New York, and Pennsylvania, originally reached this country through the medium of imported broom corn.

WOOL SOLD IN LARGE LOT GETS FARMERS BETTER PRICE

Twenty-three thousand pounds of wool were pooled and marketed at prices ranging from 49 cents to 54 cents a pound by farmers of Day County, S. Dak. These prices represent advances of from 9 to 12 cents over local quotations.

The Day County Farm Bureau, through the county agent and a representative of the State bureau of markets, assisted a committee of farmers in organizing the pool and selling the wool to the highest bidder.

This cooperative effort promises to have a permanent effect through the stimulation of meetings and demonstrations in the care, feeding, and handling of the products of sheep.

Marquis Wheat Is Recommended for Use In Nearly All Hard Spring Wheat Belt

Marquis is the best variety of common wheat for nearly all of the hard spring wheat belt, according to the Bureau of Plant Industry, United States Department of Agriculture. It makes up nearly 60 per cent of the total spring wheat in this area. It was developed in Canada as an early variety for use well to the north. This earliness has enabled it to escape to some extent the effects of rust and drought. The short, stiff straw also prevents lodging in wet seasons. In 1919 it was damaged severely by scab, blight, and rust in spite of its early maturity. This seriously affected its popularity. There is, however, no better variety for yield and milling value combined, Department of Agriculture specialists declare. Growers are advised to grow it wherever they can get clean, pure seed of good quality. Marquis is a beardless variety with hairless white chaff and short, hard red kernels.

Other Varieties in Use

The other principal varieties are Bluestem, Fife, and Preston ("Velvet Chaff"). Of these, Bluestem is most susceptible to rust and for this reason has been largely replaced by Marquis during the past six years. Fife is preferred to Marquis by some growers on "old" land in northwestern North Dakota, because it will grow taller and enable harvesting with the binder, when Marquis sometimes will not. Preston is preferred to Marquis only in southern Minnesota, because it is less susceptible to scab and also yields better.

Durum wheats are grown from Minnesota westward to Colorado, Wyoming, and Montana, but most extensively in North Dakota. They are more resistant to drought and to rust than are the common wheats. Because of their drought resistance they also are better adapted to shallow soils, which usually contain less water for crop use than better soils. Because of these adaptations the best durum wheats usually outyield even the Marquis in these places by about two bushels an acre. In the past eight years the price of good durum wheat has been about the same as that of good common wheat. The present wide spread is the result of a reduced foreign demand, and a scarcity of milling wheat of the higher grades of northern spring wheat. About one-half of the durum wheat grown in the United States is sold to a foreign market. The present high rate of exchange has temporarily reduced foreign shipments. The domestic use of durum wheat has increased rapidly during the past decade, but a strong foreign demand is necessary to keep up the price.

The Kubanka variety is best adapted to all of the varying conditions of the northern semiarid Great Plains. Arnautka and Mindum are best adapted to more humid parts of the northern spring section, and Pelissier to the higher and drier sections of Montana, Wyoming, and Colorado. Two rust-resistant varieties are Acme and D-5. The Acme has been developed only recently and is grown largely in South Dakota. The D-5 is a red-kerneled durum wheat, which is inferior for flour and semolina milling, and therefore is not recommended for growing.

Extent of Hard Spring Wheat Belt

The hard spring wheat belt includes all the spring wheat territory from the Rocky Mountains eastward to Minnesota and Wisconsin. In 1919 the nine States contained in this belt grew 19,500,000 out of the total of 23,500,000 acres of spring wheat. In the five years from 1912 to 1916, inclusive, these same nine States grew an average of nearly 17,000,000 acres each year out of the average total acreage of 18,500,000 acres in the five-year period. Both common and durum wheat are grown in this section, but common wheat is grown much more extensively than the durum. In these nine States about 80 per cent of the spring wheat is common wheat and about 20 per cent is durum wheat.

TREATY VIOLATORS CONVICTED

Approximately 315 convictions have been obtained in cases involving violations of the Migratory-Bird Treaty Act, a law administered by the Biological Survey, United States Department of Agriculture. This law went into effect in July, 1918.

WILY COYOTES SUCCUMB IN RANCHMEN'S CAMPAIGN

The wily coyote has long been a pest of the range and the isolated farms of the great inter-mountain country of the West. Unlike most animals, he has been able to hold his own against the pioneer and those who followed in the settlement of a new country, matching his wits successfully against the traps and snares of the farmer or stockman.

Last year the ranchmen of Utah showed, however, what organized, consistent effort might do in checking the depredations of this animal. In cooperation with the Biological Survey of the United States Department of Agriculture and with the assistance of county agricultural agents, committeemen from the various county extension agencies in Utah poisoned 300 coyotes. Forty-six other predatory animals were caught in this drive, most of them being wildcats. There is ample evidence that many more were killed but were not counted in these reports.

It is estimated that by killing these pests $12,200 was saved the ranchmen. When the large toll of young farm animals and poultry taken by each coyote is considered, these figures are regarded as conservative.

NATIONAL FORESTS NEED ROADS

Thirty thousand miles of road, estimated to cost not less than $150,000,000, will be needed for the proper protection and development of the National Forests and the near-by communities during the next 10 years, according to comprehensive road plans which have been prepared. The Secretary of Agriculture has already approved the construction of 5,152 miles, estimated to cost $26,463,000, contingent upon Federal and cooperative funds becoming available. Government expenditures of $15,740,000 have been authorized for this purpose.

The roads comprised in the comprehensive road plans form the basis of the ultimate National Forest road system. They are used as main highways, either in connection with through routes or to serve important local needs. The construction of feeder roads is being largely postponed until the primary road system of the National Forests is completed. It is expected that the present estimate cost will be largely exceeded when surveys are made of the projects now on the list, since in many cases the only available estimates are based upon incomplete data.

FARM BUREAU PLACES WORKERS

The Buffalo County (Nebraska) farm bureau, under the direction of the county agent, placed 320 farm workers last season. In the harvesting and haying season 80 men were placed in one week. This work took considerable time but was much appreciated. The labor work alone more than paid for the expense of operating a farm bureau office, according to one farmer.

PINK BOLLWORM THREATENS COTTON INDUSTRY IN U. S.

(*Continued from page 1.*)

necessarily depend on the absolute cooperation of the States concerned.

Louisiana Takes Action.

Louisiana, immediately upon the discovery of the infestation in Cameron Parish, declared a drastic quarantine prohibiting the growth of cotton and providing for the destruction of existing cotton and cotton seed within a radius of 15 miles of any infested point in that State. No provision has been made, however, for compensating planters for cotton destroyed. It is absolutely necessary, the department says, that some provision be made to reimburse the planters for losses which they must accept in the interest of the cotton industry as a whole. The payment of these losses, it is pointed out, will be very small as compared with the risk to the cotton crop should the pink bollworm get beyond control.

The possibilities of further spread, due to the shipment of presumably infested cotton and cotton seed from Cameron Parish makes it necessary that all such shipments be traced to destination and that steps be taken to safeguard any local infestations that may have resulted.

FOREST PROTECTION NEEDED, FORESTER TELLS TENNESSEE

"Tennessee must give immediate and serious consideration to its problem of forestry," said Col. Henry S. Graves, Chief of the United States Forest Service, speaking before the Tennessee Forestry Association. "For the perpetuation of its own industries, Tennessee must check the destructive processes which are now depleting and undermining one of the State's greatest resources.

"A broad policy is necessary—one in which the public can participate through the Federal Government and the States. It has been amply demonstrated during the last 20 years that private owners will not, unaided and on their own initiative, take the action that is necessary to stop the destructive processes which are injuring and devastating our forests.

"Their failure is due in part to the fact that they have not realized and undertaken to fulfill their own responsibilities in the right handling of forest lands. It is partly due also to the character of the forestry problem which makes it exceedingly difficult, if not impossible, for many private owners to undertake a conservative handling of their timberlands without assistance and cooperation from the public in fire protection and other matters.

"The policy I am promoting is based on the principle of concerted action by the public and by the private owners, and provides for a full recognition by the public that it must participate in the forestry problem, not only in the matter of direct ownership of larger quantities of forest lands, but that it must also participate in the problem of private forestry. The private owner must do his part in keeping his forest lands productive and not allow them to become waste.

"The first step is to stop the forest fires. It requires not only certain legislation, but also a proper support of the State forester and his organization. The most urgent need in Tennessee is legislation that will clearly and specifically place a sufficient responsibility on the private owners in the matter of protection and provide for a State-wide system in which it is mandatory for every owner of forests to participate."

Reduced Food Production Threatened; High Wages Take Many Men from Farms

Serious risk of reduced food production this year because of high wages demanded by farm laborers, high cost of farm equipment and supplies, and because of pronounced movements of people from the farms to the cities is indicated by reports and letters that are reaching the United States Department of Agriculture from many sections of the country.

Year's Movement Reported

The most definite of these reports come from New York State, where records of the population on 3,775 representative farms on February 1 this year and February 1 a year ago were made by Federal and State workers. It was disclosed that during the past year the number of people on these farms decreased nearly 3 per cent and the number of hired men decreased more than 17 per cent. If the same ratio holds for all farms in the State about 35,000 men and boys left farming to go into other industries, while only about 11,000 have changed from other industries to farming. This is a more rapid movement from the farms to other industries than took place in the early part of the war.

The same conditions in varying degrees exist in all sections, according to the Federal Bureau of Crop Estimates, although they are not so acute farther from industrial centers.

Another New York report, applicable in some degree in every part of the country, is that farm wages this year will average 14 per cent higher than they were in 1919, although in 1919 they were 80 per cent higher than they were at the beginning of the war. Estimates from 350 farmers in all parts of New York State indicate that experienced farm help, hired by the month, will be paid this year about $52 a month and board, as compared with $45.50 last year. Experienced married men, not boarded but provided with a house and farm products, are expected to receive on the average about $68.50 a month in cash as compared with $60 last year.

Disposition to Cut Down Plantings

Numerous letters to the Department of Agriculture from its field workers or from farmers indicate a widespread disposition to cut down plantings so that the work of cultivating can be attended to by the farmer himself or by members of his family. The assertion that farmers can not pay the high wages demanded in competition with other industries and make a profit on their products is frequently made. Many farmers, also, declare it is unfair to them to be under the necessity of working 10, 12, or more hours a day when the tendency in other industries is toward a shorter working day and a decreased output.

FERTILIZER BINS AT RAILROAD

The Crawford County (Illinois) farm bureau, through the efforts of the county agent, has secured space at railroad points on which to build bins for storage of limestone and rock phosphate. At Palestine an association was formed to construct a bin 60 feet long and 12 feet wide and to conduct the work of purchasing and distributing limestone. A total of 900 tons of this material has already been obtained. Other communities are rapidly following this plan, so that in time every farmer in Crawford County will have ready access to a supply of limestone and rock phosphate at reasonable prices.

The 12,000 members of boys' and girls' clubs in Nebraska estimate the total value of their products for the past year at $98,000, and their net returns at $47,000.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Pershing's War Horse Released.

Kedron, Gen. Pershing's war horse, has been released from quarantine at Newport News, Va., by the United States Department of Agriculture. It will be remembered that efforts were made to have him released immediately after his arrival in order that Gen. Pershing might ride him in the triumphal parades in New York and Washington. The Department of Agriculture took the position, however, that the menace to the livestock interests of the country was such that the release of even so distinguished an animal as Kedron could not be justified. While Kedron came through as sound as the day of his departure for France, the wisdom of the quarantine has been established by the fact that other officers' mounts in quarantine at Newport News did develop dangerous diseases and two of them had to be destroyed. One of these had a contagious disease not known to exist in this country. The other had tryponosomiasis, an infectious blood disease, akin to dourine, that is more or less prevalent in Northern Africa and Southern Europe. If the quarantine had not been established and these horses had been allowed to go free in the United States, they very probably would have been the means of spreading the diseases to such an extent that it would have been necessary to spend many thousands of dollars to eradicate the maladies, if possible of eradication at all.

U. S. Bred Stallions for Farmers.

The United States Department of Agriculture has bred and developed several stallions in its horse-breeding project now located at the U. S.-Wyoming Horse Breeding Station, Buffalo, Wyo. The stallions will be leased to private breeders and community breeding clubs for the coming breeding season. In this way it is proposed to assist in the improvement of the light horse stock of the range country where stallions of merit are not available and in those sections where light horses are preferred.

The number of available stallions is limited to about 10, as only the best of those produced have been retained or will be allowed to go out for public service. These stallions range in height from 15 hands 1 inch to 16 hands 2 inches, weigh from 1,500 to 1,400 pounds, and in nearly all cases are tried sires and known producers.

The object of the work at the station in which these horses are being produced is the preservation and development of a utility horse suitable for range and farm conditions. The points especially emphasized are the development of size, soundness, tractability, action, and stamina, in a useful animal which can be used under the saddle, on the road, or in the field.

Persons interested should address correspondence to the Wyoming Horse Breeding Station, Buffalo, Wyo.

More American Egyptian Cotton.

So great has been the success of growers of Egyptian cotton in the Southwest, particularly in Arizona, that the acreage to be planted this year probably will greatly exceed that of 1919, which was approximately 90,000. Some predictions are that the total planting will be as much as 150,000 acres. The foothold which Egyptian cotton has gained in this country as indicated by these figures is the direct result of many years of experimental and extension work carried on by the United States Department of Agriculture.

The Egyptian cotton now being grown so extensively is a long staple variety which has come to be distinct from any long staple cotton grown in Egypt by reason of scientific plant breeding conducted by Federal specialists. With the exception of Sea Island, now practically destroyed by the boll weevil, and the Meade, not yet established on a large scale, there is nothing in this country to compare with this American-Egyptian cotton. Because of its superior quality and especial fitness for making thread, automobile tire fabric, and other products, a strong demand for it has developed.

All of the Egyptian cotton seed now planted in the Salt River Valley in Arizona and in the Imperial Valley is of the Pima variety, developed by the Federal specialists. Special attention is called to this fact, because commercial interests which have undertaken to promote the growing of this cotton on a large scale in Arizona and California have given their product a distinctive name, though grown from seed of the variety developed by the Department of Agriculture.

Shows Toll of Tuberculosis.

Tuberculosis was responsible for the condemnation of more cattle, slaughtered under Federal meat inspection last year, than all other diseases combined. Information from the Bureau of Animal Industry, United States Department of Agriculture, shows that 59,547 carcasses of cattle were condemned on post-mortem inspection and of that number 37,600 were the result of tuberculosis. In addition 53,652 parts of cattle carcasses were condemned for the same cause.

The bureau points out that tuberculosis in cattle and hog cholera in swine are the two most serious contagious diseases affecting meat animals, and there is evidence that a heavy loss occurs on farms in addition to condemnations at establishments where Government inspection is maintained. The Department of Agriculture is prepared to give information on the best methods of reducing the losses.

Alfalfa Weevil Checked.

The alfalfa weevil in some sections not only causes financial loss but even threatens actual ruin. Heretofore the control methods were only partially successful. Flooding the alfalfa fields, cultivating them when dry, and dragging them with a brush-harrow, seemed to check this pest only in a measure. Also, the growth of a second cutting was so delayed and often so short that the crop as a whole was much reduced.

Work by the Salt Lake City office of the Bureau of Entomology, United States Department of Agriculture, showed that best results came from spraying the alfalfa fields with a solution of arsenate of lead when the larvae of the weevil were doing the greatest amount of damage on the first crop. Demonstrations were held in various sections of the great Salt Lake Valley in cooperation with the county agricultural agents. During 1919 this work was extended and the demonstrations carried forward by the county agents indicate that an effective and cheap method of stopping the destructiveness of this pest has been found.

During the past year 4,263 acres of alfalfa were treated by spraying, and it

is estimated that the net saving on these demonstration fields totals $41,371. By this method the first crop of hay is saved. The cost is only about $1.50 an acre, as but 2 pounds of arsenate of lead are mixed with 100 gallons of water and applied at this rate to an acre of alfalfa. Power pumps which force the spray through extension nozzles make it possible to apply a fine, driving spray over a wide strip quickly and effectively.

The demonstrations proved a considerable increase in the production of hay to the acre. This sometimes amounted to from 1,500 to 2,000 pounds. In Sevier County, Utah, demonstrations conducted on 1,700 acres showed an average increase of 800 pounds an acre. At the prevailing price of alfalfa hay, $20 a ton, the resulting saving should total $13,600 in that county alone.

County agents and farmers in other counties in Utah also report that when normal conditions prevailed last year the spraying of alfalfa proved to be cheap, practical, and effective.

Testing Roads for Heavy Travel.

State highway departments are vitally interested in the successful outcome of comprehensive experiments and tests now being made by the Bureau of Public Roads of the United States Department of Agriculture. One State engineer recently declared that millions of dollars in his State are involved in the proper design of road surfaces, which makes up one of the problems being investigated by the Federal engineers.

The coming into general use of the heavy motor truck has practically revolutionized the science of road building. Big new problems came when loads weighing 10 to 15 tons took the place of vehicles that placed a weight one-fourth as much or less. The roads built 10 years ago were constructed before this fact could be realized—which is one of the resons why many "permanent" roads have proved to be impermanent.

One of the testing experiments being made by the Federal bureau involves the use of a 49-section roadway in the Arlington farm, owned by the Department of Agriculture. Each section was built from a different type of material, or with a different method of construction. The same use is given to each section, so that eventually the type of construction best suited to heavy traffic will prove itself.

Few Imported Cattle React.

Federal tuberculin tests of cattle reaching the United States from foreign countries show relative freedom from the disease. According to a report of the United States Department of Agriculture for the last fiscal year, 885 cattle intended for import were tested and all except 16 passed the test. Through arrangements with the British Government the bureau has for several years maintained an inspector in Great Britain, among whose duties is the tuberculin testing of cattle intended for shipment to the United States. Cattle not accompanied by tuberculin-test certificates or approved by the bureau inspector in Great Britain must be tested in quarantine after arrival in the United States.

Foresters Test Wireless Phones.

Preliminary tests of the wireless telephone by officers of the Forest Service, United States Department of Agriculture, in the vicinity of Portland, Oreg., lead to the belief that this invention can be utilized extensively in the National Forests, especially in fire-prevention work. While it is recognized that there are conditions limiting wireless telephone transmission, the results so far are pronounced very satisfactory.

One of the sets used in the tests was installed on Mount Hood, Oreg., where the problem of providing a satisfactory support for the antennae was a difficult one, since a mast was needed which would be strong enough to resist the 70 or 80 mile gales that sweep the mountains. At the same time the mast had to be light enough for the men to be able to raise and lower it before and after sleet storms. A 50-foot bamboo pole was finally selected as the support.

In the telephone conversations between the sets, some of which were 10 miles apart, the voice carried very clearly and was about as loud as over a wire line. Telegraph signals from many stations scattered over the continent were picked up. On Mount Hood they often were so loud as to be audible in any part of the cabin.

Growing National Forest Receipts.

Receipts from the National Forests for the seven months ending January 31, 1920, totaled $1,418,144.18 as against $1,111,321.21 for the same period of the last fiscal year, according to reports to the Forest Service, United States Department of Agriculture. This is an increase of $306,822.97.

Timber sales show the largest increase, $271,175.42. Water power comes next, with $17,450.54, followed by special uses, $7,600.61; and grazing, $7,022.32.

Test Found for Whale Meat.

A wide range of research work in connection with Federal meat inspection is shown by a recent report of the Bureau of Animal Industry, United States Department of Agriculture. Laboratory studies during the past year developed a method for the detection of whale meat in sausage or other mixtures with animal fats. In cooperation with the Bureau of Markets the meat-inspection laboratories made studies of the melting point and composition of the fat of soft pork. Other activities were the analyses of spices, branding inks, rat exterminators, waters, and other products used directly or indirectly in connection with meat inspection and the packing industry.

Helps Creameries Save Coal.

The practical value of using exhaust steam in various creamery operations is being demonstrated by the Dairy Division, United States Department of Agriculture. Last year 45 creameries installed exhaust-steam water heaters and hot-water boiler-feed pumps, assistance being given and, in some cases, plans furnished by Government specialists. Equipment for using exhaust steam to pasteurize cream was installed by six creameries, and a number of others introduced similar economies.

The result of such efforts, it is pointed out, makes possible more economical operation. The high prices of coal and electric power have given added importance to the utilization of steam formerly wasted.

SHOULD PLAN FARM GARDENS SO WORK WILL BE EASIER

Of several thousand farm women who answered a series of questions sent out by the extension service of the United States Department of Agriculture, 92 per cent had gardens and 56 per cent of the gardens were tended mainly by the women themselves. If this be universally true, it is important that the farm garden be so planned that the work of cultivating it will be simple and easy. All of the heavier work, such as plowing and fitting the land, should be done by men with the aid of a team.

The garden should be planted in long, straight rows and cultivated once a week with a horse, according to United States Department of Agriculture specialists. If this much is done by the men the work of the women will be materially reduced. The care of a home garden is not hard work if the fitting of the land and the main part of the cultivation is done with horse-drawn tools. Plan the farm garden right, work it right, and it will prove the most profitable piece of land on the farm.

Better than money, because they earn added money—War-Savings Stamps.

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HOME GARDENS RECOMMENDED TO HELP CUT COST OF EATING

Thrift Food Plats Important in 1920, Says Department

Less Plantings by Commercial Raisers of Vegetables Cited as Reason for Backyards to Be Put to Good Use

One way of reducing the cost of living is open to every man, woman, and child who can get the use of an idle plot of ground. That way lies through the planting and cultivation of a home garden—a thrift garden. War gardens played their part in the great mobilization of resources in war time—thrift gardens now have their own big job in helping households to feed themselves.

The reasons for thrift gardens are many and various. The same reasons that existed last year and the year before still are present. Thrift gardens will produce food where nothing otherwise would be produced, they will reduce family food bills, they will return abundantly in proportion to the time and effort devoted to them. But added to these reasons is another one peculiar to this year.

Less Commercial Planting

Reports to the United States Department of Agriculture indicate that the plantings by commercial vegetable gardeners will be materially reduced this year because the commercial gardeners see no way of obtaining enough labor to conduct their usual operations. The commercial gardeners claim that they have paid high wages in endeavors to keep up production, but now have reached the point where the returns will not justify the continuance of this expense. At least, that is the report reaching the Department of Agriculture from seed merchants whose operations at this season are regarded as a good indication of what conditions will be a month or two from now.

If the reduction of commercial gardening becomes a fact, the obvious result will be fewer vegetables and higher prices. The logical remedy lies partly in home gardens. This is a remedy, moreover, that will work no harm even if the commercial acreage should be up to normal, as any surplus of fresh vegetables may be saved by canning, drying, and other means of conservation and the surplus kept so that it will be useful next fall and winter.

Many More Gardens Needed

Thousands of families learned the value of home gardens in war time. United States Department of Agriculture specialists believe it essential that these families' interest be maintained and that other thousands be added to the home-food producers.

"Now is the time to begin making plans for your 1920 thrift garden," these specialists declare. "First, locate

(*Continued on page 2.*)

EVERY HOME SHOULD HAVE A GARDEN THIS YEAR

By SECRETARY MEREDITH.

All discussion about the high cost of living aside, one way to have food at a reasonable cost is to GROW IT IN YOUR OWN YARD.

The garden can't do it all. But it can help wonderfully, especially with such important necessaries as potatoes and beans.

It is true that the war taught Americans the value of home gardening. While complete statistics of the production in gardens are lacking, it is the belief of the Department of Agriculture and State workers in this field, based on wide observation, that MORE FOOD WAS PRODUCED IN HOME GARDENS LAST YEAR THAN DURING THE WAR YEAR OF 1918.

The Department of Agriculture believes that many hundreds of thousands of people will share its view about the importance of growing food at home in 1920, and that they will welcome expert advice from time to time.

The Department is prepared to give the public the benefit of its information gathered by practical, scientific gardeners, and requests will bring publications that should be of value to the experienced man as well as to the beginner.

READY FOR SEASON'S DRIVE AGAINST CATTLE FEVER TICKS

Federal Officials Hope to Clean Up 90 Counties This Year

Early-Dipping Policy Followed to Catch Parasites Before They Raise Large Families; Tick's Days Numbered

March found preparations well under way for the 1920 campaign against the cattle fever tick. Prospects for effective work are so encouraging that Federal officials in charge of tick eradication expect that at least 90 counties in the various tick-infested States will be made ready for release from Federal quarantine next December 1. This will mean a much larger amount of territory cleaned up than was placed in the free area last year.

Fight Two-thirds Won

Only 30 per cent of the total area originally quarantined remains under tick domination, and it should be materially reduced this year. The end of the long campaign which began actively in 1906 is well in sight, and with continued cooperation from the State and county governments the Bureau of Animal Industry, United States Department of Agriculture, hopes that in not more than three years the South will be tick-free.

Cattle will be sent through the dipping vats as early in the season as the weather and their condition will permit. Reports from field workers say that cattle which went into the winter tick-free are showing up this spring in much better condition than the animals which

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were subject to continued attacks of the parasites. Cattle in poor condition may be kept from the vats until they have a chance at spring forage, but wherever possible early dipping will be practiced to kill the ticks before they have a chance to multiply by thousands or millions.

Much Dipping During Winter

Despite bad weather, dipping was not discontinued during the winter in localities where the operation would not harm the cattle. There were more than 300,000 dippings in January, and probably a greater number in February. The winter work, with early dipping in March, will give the tick eradicators a flying start that is expected to be a big help in making this year a big one.

According to the latest report 32,756 dipping vats—"canals to prosperity"—are ready for use this spring. They are divided among the States as follows:

Alabama, 8,008; Arkansas, 2,628; Florida, 1,516; Georgia, 2,984; Louisiana, 4,632; Mississippi, 4,294; North Carolina, 480; Oklahoma, 1,150; South Carolina, 844; Texas (north), 4,785; Texas (south), 1,445.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 6, 1920:

Pears: Production Estimates and Important Commercial Districts and Varieties. Department Bulletin 822.

Production of Clean Milk. Farmers' Bulletin 602.

Protection of Potatoes from Cold in Transit—Lining and Loading Cars. Farmers' Bulletin 1091.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention, make your request *definite* by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

The shipper who starts a car toward market should notify the consignee in such detail that prompt disposition of the goods may be made after the arrival of the car. This notification is often made by telegram and should include all information necessary to insure the prompt acceptance and disposal of the shipment.

SICK SWEET POTATOES MEAN DANGER IF USED IN SEEDING

Care Necessary in Choosing and Treating Tubers This Spring

Caution Also Advised in Preparation of Hotbeds and Crop Rotations; Decay in Storage Was Large

Owing to large losses which disease and decay have caused in the sweet-potato crop held in storage this winter, particularly in the South, United States Department of Agriculture specialists earnestly recommend that growers take steps at an early date to prevent the use of diseased potatoes for bedding, thus protecting the next crop from the danger of further losses. The three points upon which special emphasis is laid are:

Careful selection and disinfection of seed potatoes.

Care in preparing hotbeds.

Crop rotations.

Before the potatoes are bedded they should be carefully picked over. All with black-rot spots and all badly mutilated potatoes should be thrown out. The sound, healthy ones should then be disinfected by immersing them for 10 minutes in a solution made by dissolving 1 ounce of mercuric chloride crystals in 8 gallons of water. In this work only wooden receptacles should be used.

LIME LAND FOR CLOVER

A ton of lime on wheat in the fall will make two stems of clover grow where one grew before.

Quantity of Solution Recommended

For treating a large quantity of potatoes about 50 gallons of the solution may be made up at one time. After treating the first 10 bushels in this 50 gallons, one-half ounce more of the mercuric chloride crystals should be added, and also enough water to bring the total amount of the solution once more up to 50 gallons. The mercuric chloride crystals will dissolve readily in hot water. The potatoes should be treated just before bedding. Rinsing in water after the treatment is not necessary.

If mercuric chloride can not be obtained, the potatoes may be disinfected by immersing for 5 minutes in a solution of formaldehyde (commercial, 40 per cent) made by diluting one quart of the formaldehyde with 50 gallons of water. This solution can be used repeatedly without losing strength. The potatoes need not be rinsed but should be bedded soon after treatment.

Preparation of Hotbed

If the old hotbed is to be used, the dirt should be carted away and replaced by new soil or sand from the woods or elsewhere where sweet potatoes have never been grown. The framework should be disinfected by spraying with a solution of formaldehyde similar to that recommended above. All decayed sweet potatoes and rubbish likely to harbor the disease germs should be raked up from around the bed and carted off or, preferably, burned.

Cover the potatoes with soil or sand of the same sort as that used in making up the hotbed. If manure is used for heating be sure that it has not been infected with the disease germs by rotted sweet potatoes thrown on it. If the bed is near the barnyard, fence it in or cover it with chicken wire to keep chickens, dogs, or other animals from running over it, since they may carry the disease germs on their feet.

Crop Rotation Recommended

By carefully following these directions, slips free of diseases may be grown, but they may still become diseased if they are planted on ground where diseased sweet potatoes were raised the previous year. Therefore it is necessary to plant the slips on new ground or on ground where sweet potatoes have not been grown for several years.

HOME GARDENS RECOMMENDED TO HELP CUT COST OF EATING

(*Continued from page 1.*)

a piece of suitable land; second, make your plan; third, get your seeds; fourth, start work at the earliest possible moment."

A request to the United States Department of Agriculture, Washington, D. C., will bring a booklet that will tell how to plan your garden, how much seed to buy, how to get the land in shape for cultivation, how to take every other step in the process of making your back yard or some other vacant lot help feed you.

DRAINAGE PAYS FOR ITSELF

The county agent of Deuel County, S. Dak., reports that farm bureau work during the past two years, resulting in the draining of 5,000 acres of land in this county, has already paid for itself through increased crops and increased value of land.

Would Maintain Copra-Crushing Industry Because it Provides Good Feed Supplement

Crushing copra—dried kernels of coconuts—became an American industry in war-time when European countries were unable to get the raw material. Now an important agricultural problem, according to Dr. Carl L. Alsberg, chief of the Bureau of Chemistry, United States Department of Agriculture, is the maintenance of the industry in this country because it has added valuable growth-producing substances to American stock feeds. Maintenance of the industry depends largely upon whether American farmers and stock raisers will recognize the value of the feed.

Investigations have shown that a little of the press cake added to stock feed greatly increases its feeding value. The copra press cake is especially valuable as an addition to dairy feed and its worth in that regard has long been recognized in Europe.

Comes from Pacific Islands

Copra is produced chiefly in the Philippines, East Indies and the Southern Pacific Islands. The nuts are opened and the kernels are broken into small pieces by the natives and then dried. The dried copra is shipped to the countries which buy it for its oil and feed value.

During the war the dried copra piled up in the islands where it is produced, since there was no adequate market for it. Some enterprising Americans, in order to get the oil, purchased dried copra in large quantities at a low price, brought it to the United States, and pressed it in cottonseed presses. Copra oil is especially valuable in making margarines, because at the temperature of the Temperate Zone it is usually a solid, although in tropical countries it is a liquid. The oil brings more revenue to the industry than the press cake, which is really a by-product. From the point of view of agriculture, however, the press cake by-product is of the highest importance.

Feeding Value Shown

Recent investigations have shown that feed in order to promote growth in animals must contain certain substances the nature of which is not fully understood. These substances have been designated as fat soluble and water soluble vitamines. Many feeds which supply heat or tissue building material do not contain these essential substances, and when given alone they will not promote growth. In fact, if either of these types of substances is entirely absent from the diet of a young animal, it will die. The copra press cake contains a little of the fat soluble substance and considerably more of the water soluble substance, and for this reason is a valuable addition to a diet made up of bulky foods which have little or none of these growth-promoting substances.

Rich in Protein, Also

Copra press cake is a valuable feed, not only on account of the vitamines, but also because of the high quality of its protein. The protein of the copra press cake contains a relative high percentage of an amino acid which is essential to normal growth but which is present in only small quantities in corn, oats, and most of the other cereal grains. For this reason, as well as on account of the vitamines, copra press cake is an excellent feed to supplement the grains. A small quantity of it added to the grain feeds provides an abundance of the essential substances which the grains lack. A feed made of grains and a small proportion of copra press cake is more nutritious than a feed made exclusively of grain.

Copra press cake, of course, is not the only source from which the vital growth-promoting vitamines may be obtained. The water soluble vitamine is found in seeds and in the press cake of the peanut, cotton seed, soy bean, and other vegetable materials. The fat soluble substance is found in hay, alfalfa, and green vegetables. As the value of these substances as food accessories become more generally known it will be necessary to use every available source if they are to be obtained at reasonable prices.

A NEED AND A CURE

Farms need clover.
Clover needs lime.
If soil is "sour" lime it for clover.

TURPENTINE AND ROSIN SHOW ENORMOUS DECREASE

The stocks of turpentine and rosin on the storage yards and in the hands of the large dealers and jobbers throughout the country on February 2, 1920, as determined by the Bureau of Chemistry, United States Department of Agriculture, show a very decided decrease since the survey of March 31, 1919, and indications are that the stocks will be even smaller on March 31 of this year.

The locations and quantities of naval stores on February 2 were as follows:

Location.	Turpentine (50-gallon casks).	Rosin (round barrels approximately 500 pounds).
Savannah and Brunswick, Ga.	7,898	57,157
Jacksonville and Fernandina, Fla.	8,955	82,826
Pensacola, Fla.	4,972	47,916
Mobile, Ala., and Gulfport, Miss.	2,442	13,871
New Orleans, La.	210	9,468
New York, N. Y., and Boston, Mass.	1,716	22,649
Philadelphia, Pa., and Baltimore, Md.	647	768
Cincinnati, Ohio, Louisville, Ky., and Indianapolis, Ind.	7,980	17,465
Cleveland, Ohio, Pittsburgh, Pa., and Detroit, Mich.	2,377	3,816
Chicago, Ill., and Hammond, Ind.	1,340	6,165
Milwaukee, Wis., Minneapolis and St. Paul, Minn.	1,001	461
St. Louis, Mo., Kansas City, Mo., and Fort Smith, Ark.	1,860	607
San Francisco, Calif., and Seattle, Wash.	2,634	777
Total	36,923	263,946

The stocks of some concerns whose principal business is the manufacture of paint and varnish, in which turpentine and rosin enter as raw materials, and who frequently deal in these commodities, have not been included in this report, but will be included in a later report covering stocks in the hands of consumers as of the same date.

The stocks of turpentine and rosin on the yards and in the hands of dealers and jobbers show a decided decrease from the stocks on March 31, 1919, at which time there were reported to be 131,288 casks of turpentine and 430,724 round barrels of rosin on hand. These latter figures, however, did not include stocks at Philadelphia, Baltimore, Pittsburgh, Detroit, Indianapolis or Milwaukee, as these points were not included in the survey of March 31, 1919. The total stocks at these points on February 2, 1920, were 3,246 casks of turpentine and 1,657 barrels of rosin, which, subtracted from the totals given on the preceding page, would leave 33,677 casks of turpentine and 262,289 barrels of rosin, at all points covered by the report of March 31, 1919, as against 131,288 casks of turpentine and 430,724 barrels of rosin at that time. It is probable that the stocks on March 31, 1920, will be smaller than they were on February 2, so that the actual decrease will be even greater than is indicated by this report.

The most profitable use is made of beet tops when they are siloed and fed with alfalfa hay or other forage and possibly supplemented with grain or concentrate feeds.

Weekly News Letter

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Edwy B. Reid, Chief

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Harlan Smith, Assistant in Charge

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DON'T NEGLECT TO PLANT POPCORN IN FARM GARDEN

Don't forget to include a plat of popcorn in your garden. Besides its use as a confection, popcorn possesses much food value.

On many farms where it is not desired to grow popcorn as a market crop, a few rows are planted in the garden for home use. This usually interests the children and it is well to let them do the planting.

If it is desired to grow popcorn as a field crop, the surplus stock that is not wanted for home use can usually be sold to local merchants at a fair price, or a profitable local trade may be built up by supplying it direct to consumers.

Almost any variety of popcorn will give satisfactory results if properly handled, and, by the judicious seed selection the chosen variety can be greatly improved.

Popcorn should be planted early so it will have a long season in which to mature. The planting may be done as soon as the soil is dry enough to cultivate, or when the oak trees begin to show their new leaves.

A warm, well-drained location, free from marshy conditions, should be selected, according to the United States Department of Agriculture. The soil should be plowed or spaded to a depth of 8 inches or more and the surface of the plat thoroughly pulverized before planting. The rows should be about 3 feet apart. A small furrow 2 or 3 inches deep is sufficient. The kernels should be dropped 8 or 10 inches apart in the row and covered to a depth of about 1 inch. The planting should be done before the moist soil in the furrow has had time to dry out.

Grass and weeds should be kept down as much as possible while the corn is making its early growth, and the soil should be kept loose over the surface by frequent cultivation. If only a small plat is planted, it is better to plant a number of short rows.

FARM BUREAU FEDERATION TENDERS AID TO DEPARTMENT

"This Department of Agriculture is designed to serve and I expect your active interest and cooperation."

Edwin T. Meredith, Secretary of Agriculture, thus greeted the executive committee of the American Farm Bureau Federation when its 18 members, in session in Washington, called at the department March 6.

J. R. Howard, of Iowa, spokesman of the visiting delegation, which represented the organized farm bureaus of 28 States, with a membership of 1,060,000 farmers, said the committee had called to offer its services. The Federation has the department's welfare very much at heart, he said. He hoped the department would call upon it for help whenever its services would be useful.

Secretary Meredith said the farmers' representatives could render the department a real service by consulting with its officials, because they, the farm bureau representatives, could keep the department informed as to the farmers' needs and desires. He told his callers he expected them to keep him informed of the farmers' views on matters with which the department has to deal and that he wanted their suggestions and advice on present activities and in planning new undertakings.

The Secretary commented on the progressive constituency of the Federation, and declared he deeply appreciated the support of such a body of farmers. He believed that with the help of their organization and other farmers' organizations the Department of Agriculture could increase its effectiveness and greatly extend its usefulness throughout the country.

ATTACKS ON CHALCIS FLY DEMAND COOPERATIVE WORK

Thousands of dollars can be saved annually by fighting the chalcis fly in the districts where alfalfa seed and clover seed are grown, although it can not be hoped to eradicate this pest from any seed-producing locality. This is stated as a result of investigations conducted by the Bureau of Entomology of the United States Department of Agriculture.

The rapid dispersion of the adults of this species makes it vitally important that control methods should be taken up by community action rather than by the individual. The following control measures are suggested:

Standing alfalfa and red-clover plants along fence lines and waste areas should be burned over in autumn to destroy hibernating larvæ.

Cultivation of alfalfa seed fields during the winter is of much value in covering the infested alfalfa seeds containing hibernating larvæ.

Whenever possible, the alfalfa seed grower should do most of his irrigating in early spring, or before the seed crop is grown.

Every farmer in an alfalfa seed-growing district should cut all of the standing alfalfa along fence lines, ditch banks, and other waste areas at the time of cutting a hay crop and before a seed crop is grown.

Hay crops should be cut carefully so that no stems will remain standing to develop seed in advance of the regular seed crop.

Horses, cattle, and sheep may render valuable service by destroying plants that have escaped the mower.

All seed fields should be handled so that a heavy setting of pods will be secured with the first bloom and the crop will be removed from the field as early as possible.

Attempts to grow second crops of alfalfa seed in a single season will meet almost certain failure because of the increased abundance of chalcis flies late in the summer.

It is a mistake to pasture alfalfa seed fields which have become too severely infested to yield a crop worth harvesting. Live stock walking through the ripe alfalfa cause the seeds to be shelled out, and those infested with the hibernating larvæ of the chalcis fly fall on the ground, where they become the source of infestation the following year.

INCREASE OF WOOL PRODUCTION

The amount of domestic pulled wool produced in 1919 was 115 per cent of the amount produced in 1918, according to the reports of wool pullers to the Bureau of Crop Estimates of the United States Department of Agriculture. This amounted to 48,300,000 pounds in 1919 as compared with 42,000,000 pounds in 1918 and 40,000,000 in 1917. The amount of wool pulled per skin in 1919 is estimated at an average of 3.13 pounds as compared with 3.16 pounds in 1918.

New Peach Sizer Perfected and Given for Public Use by Department Workers

This year a part of the peach crop may be better graded at less expense than heretofore by use of a new sizer developed by Government workers. Two machines were built last year and tested under commercial conditions at Leesburg, Va., and Mayfield, Ga. Information gained through these tests was used in perfecting the present machine, drawings of which are now available to all growers or manufacturers interested, according to announcement by the Bureau of Markets, United States Department of Agriculture.

The machine has several unique features and advantages over existing types of sizers which make it possible to handle fruit with less bruising, while its construction permits 10 to 15 packers to work at one time, thus making possible a run of from two to three carloads of peaches a day from each machine, the amount depending on the average quality of the fruit. The overall dimensions of the machine are 24 by 15 feet. It requires an electric motor of less than one horsepower capacity, or a small gas engine, to operate it, and it can be run at half capacity if desired. Under commercial conditions it should be sold at a price not to exceed $450, according to estimates of the designers.

How It Works

The peaches from the orchard are delivered on an inclined roller conveyor, on each side of which sorters stand and pick out culls and damaged fruit. The rotation of the peaches on this conveyor, which is obtained without bruising, enables the sorters to see the entire surface of the fruit without touching it. From this roller conveyor the peaches are delivered to two sets of ropes running over pulleys. A simple lever arrangement permits the adjustment of the spaces between these ropes to accommodate any size fruit it is desired to grade. Although the ropes diverge from each other under ordinary operating conditions, they may be set nearly parallel to facilitate the distribution into the bins of fruit which runs almost uniform in size. This control is made possible by a perfected hat-rack movement which is one of the unique features of this machine.

As the peaches come off the roller conveyor they roll down a slight incline to the ropes on which they travel until dropped through into canvas bins. It is impossible to congest the machine, because the peaches are fed one at a time to the moving ropes. Some objections to former rope sizers have been overcome through the use of a special coupling device, an idler which serves to keep the proper tension on the ropes and the mechanism which quickly widens or reduces the space between the ropes. The machine, which was devised particularly for six-basket carrier packing, can be used equally well for bushel packs with a slight modification of the bins.

Possibilities for Other Fruits

In announcing the perfected machine, which is the work of the grades and standards project and the technological laboratory of the Bureau of Markets, it is stated that the machine has possibilities for grading other fruits such as apples, pears, and oranges, while it may be possible to modify it to handle sweet potatoes.

An application for a public patent on this sizer is pending in the Patent Office, but the department can give no assurance that a patent will be allowed on the machine or that some of the elements covered by the application are not already protected by existing patents. The bureau has applied for patents on parts of the machine in order to make them available to all, and is ready to furnish a set of working drawings to growers or manufacturers for $2, which is intended to cover merely the cost of labor and materials.

PRICES OF MEAT ANIMALS FALL AFTER LONG INCREASE

The advance in the monthly average price of hogs per 100 pounds received by producers, which began with February, 1916, comparison being made with the same month in the preceding year, continued without a break to August, 1919, and the advance was from $7.07 to $19.30. Since August, 1919, the fall from month to month was continuous to $12.66 in December, followed by a rise to $13.36 in January, 1920, or $2.33 below the January price in 1919, according to the records of the Bureau of Crop Estimates, United States Department of Agriculture.

The average price of sheep per 100 pounds received by producers throughout the whole year had an upward movement from 1913 to 1918, from $4.54 to $10.94, the principal increase being in 1917. The average for 1919, $9.58, is a drop of $1.36 from that for 1918, or 12 per cent.

From 1915 to 1918, the average price of beef cattle per 100 pounds to producers invariably advanced from year to year in each month and the advance continued from 1918 to 1919 until May, after which month the average price in 1919 fell below that of 1918 in each month, and the average price for January, 1920, was $8.99, or 66 cents below that for January, 1919. In the upward movement, the highest monthly average price reached was $10.84 in May, 1919.

Veal calves gained in average price in every month of every year since 1915, the comparison being with the same month of the preceding year, and the price being per 100 pounds to producers. The yearly average price rose from $7.63 in 1915 to $12.74 in 1919.

CAN THE CASH CROPS BE PRODUCED AT PROFIT?

Are the crops and live stock the farm is producing for sale to the nonproducers of the community or for export to other communities such as can be made profitable when produced and sold locally or exported?

The best guide here, says the United States Department of Agriculture, is the practice of the community; enterprises should be adopted that are found generally on its farms. A limited demand from the nonproducers of the community for some product not generally grown locally, and for which many local farms are not adapted, will sometimes afford a few farms opportunity for expansion.

For instance, the plan suggested by the department for providing dairy products should, if followed, produce enough surplus calves to develop here and there cattle-raising and cattle-feeding farms. Some farms will be specially adapted to this purpose by having an abundance of suitable but unsalable by-products, cheap pasture, or pasture land unadapted to cropping. Other farms may develop a considerable business in the production of pork, or of pigs for supplying farms where brood sows are not kept. An occasional farmer will develop a business of producing seeds of some particular farm crop or crops to meet the needs of those lacking suitable skill and experience for such production.

One of the most practical steps the shipper can take to better his condition is to familiarize himself with business practices and to secure a better knowledge of the way his produce is handled on the market.

Hessian Fly Losses are Preventable; Another Outbreak of Pest is Imminent

Although there is no remedy for the Hessian fly when once it takes possession of a crop of wheat, a great deal can be done toward keeping the fly out of the wheat, says the United States Department of Agriculture.

Since the Hessian fly is the most destructive insect enemy of wheat in the United States, control measures pay. There have been at least seven general outbreaks east of the Mississippi River in the past 37 years, and another is regarded as imminent by specialists of the Bureau of Entomology. The average annual damage to wheat throughout the United States from this insect is estimated at $50,000,000.

How to Stop Losses

The means of preventing loss, as summarized by the department, are these:

Practice crop rotation. Do not sow wheat on stubble if it is possible to avoid doing so.

Plow under all infested stubble, where practicable, soon after harvest. Plow ruined wheat as soon as possible after it has been determined that the crop will be a failure.

Destroy all volunteer wheat by harrowing, disking, plowing, or some other method.

Plow all land to be sown to wheat as early and deeply as existing conditions permit, and prepare a thoroughly pulverized and compacted seed bed.

Conserve moisture against a period of drought at seeding time.

Use good seed.

Fertilize.

Sow wheat during the fly-free period as advised by your farm adviser or State experiment station.

Adhere to these practices every year whether the fly is abundant or scarce. They will help to keep it scarce.

Community cooperation is essential if success is to be attained, because one infested field may furnish enough flies to damage the wheat for several miles around.

When to Sow Wheat

Sowing wheat during the fly-free period means moderately late sowing. Experiments conducted over a great many years have shown that, in most localities, the safe date for sowing wheat to escape Hessian fly injury usually coincides with the proper time for sowing in order to obtain the largest yields independently of Hessian fly injury. These dates have been determined for certain localities as follows:

In northern Michigan, soon after the 1st of September.

In southern Michigan and northern Ohio, about September 20.

In southern Ohio, after the first week in October.

In extreme northern Illinois the safe period usually occurs from September 21 to 28.

In central Illinois and Indiana, from September 21 to 30.

In extreme southern Illinois, from September 30 to October 5.

In central Kentucky, from October 5 to 15.

In central Tennessee, from October 15 to 25.

In Georgia and South Carolina, from October 25 to November 25.

In northeastern Kansas the safe period is from October 1 to 10.

In east-central Kansas, usually from October 1 to 20.

In extreme southern Kansas and northern Oklahoma wheat should not be sown until the second week in October.

This is true also of Virginia near sea level.

October-sown wheat always enjoys the greatest freedom from the fly in Maryland, except in the mountainous regions where earlier planting is necessary.

In southeastern Pennsylvania the safe period is during the last week of September, and practically the same corresponding delay in wheat sowing in the fall should be followed to the southward.

Date Depends on Conditions

These dates are only approximate, and serve to show in a general way about the time when the fall brood of the fly disappears. All are dependent upon latitude, altitude, longitude, and other local conditions. The date varies considerably in broken or hilly country, even on the same farm, being appreciably later on the southern slope of a hill than on the northern slope of the same hill at the same elevation. Because of the fact that the larger part of the fall brood appears and is gone within a week or so, it is possible so to time the seeding of winter wheat as to avoid the Hessian fly, and this is one of the most practical and effective measures that can be applied.

A full discussion of the Hessian fly and how to prevent losses from it is contained in Farmers' Bulletin 1083, copies of which may be had free by writing the United States Department of Agriculture.

AREA OF WINTER CEREALS PLANTED IN FOREIGN LANDS

A cablegram to the Bureau of Crop Estimates, United States Department of Agriculture, from the International Institute of Agriculture, Rome, Italy, received March 3, 1920, gives the area of winter cereals as follows:

Wheat in Spain is given as 9,511,000 acres for the 1920 harvest, or 91.6 per cent of the 1919 area, and 94.3 per cent of a five-year average 1914–1918, and the area of barley is given as 4,206,000 acres for the 1920 harvest, or 98.9 per cent of the 1919 area, and 109 per cent of a five-year average 1914–1918.

The area of wheat in France is given at 11,369,000 acres for the 1920 harvest, or 103.5 per cent of the 1919 area, and 89.5 per cent of a five-year average 1914–1918; and the area of rye is given as 1,959,000 acres for the 1920 harvest, or 108 per cent of the 1919 area, and 90.2 per cent of a five-year average 1914–1918.

The area of wheat in Roumania is given as 1,321,000 acres for the 1920 harvest, or 44.5 per cent of the 1919 area, and 28.1 per cent of a five-year average 1914–1918.

The area of wheat in British India is given as 27,429,000 acres for the 1920 harvest, or 115.2 per cent of the 1919 area, and 85.9 per cent of a five-year average 1914–1918.

The condition of cereals is good in Belgium, Great Britain, Ireland, Spain, Italy, and British India, and average in Egypt.

IOWA HOLDS HER OWN

Iowa led all of the States in the Union on January 1, 1920, with a total value, amounting to $640,000,000, of cattle, hogs, sheep, horses, and mules on farms. Texas, the Lone Star State, was second with $572,000,000; Illinois third, with $446,000,000, and Missouri fourth, with $379,000,000; according to the Bureau of Crop Estimates of the United States Department of Agriculture.

WASTE LAND WOULD PAY ITS OWN TAX

A total of 17,340,000 tons of wild hay was harvested in 1919 from prairie and marsh lands throughout the United States. At least a few thousand tons were produced in every State, South Dakota leading with 3,728,000 tons, with Nebraska, Minnesota, and South Dakota following with over 2,000,000 tons each, according to the Bureau of Crop Estimates of the United States Department of Agriculture.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Alien Plant Enemies Caught.

The European corn borer may be present in sections of the country where it has not yet been discovered—but it may not. And it certainly would shortly have been in many sections where it does not exist if the United States Department of Agriculture, the other day, had not stopped a shipment of foreign broom corn at the port of New York. The broom corn came from Venice and there were 97 bales of it—enough to scatter pretty well over the United States. And it was infested with the European corn borer. Inspectors of the Federal Horticultural Board, however, were on hand. They intercepted the broom corn and prevented a further scattering of the corn borer over the country. That was just before the Secretary of Agriculture promulgated a quarantine denying entry to the United States from all other countries of the stalks of various plants that serve as hosts to this pest.

The work of determining present distribution of the corn borer is going forward. It is now known to exist in Massachusetts, New Hampshire, New York, and Pennsylvania. But portions of the shipment of broom corn in which the insect was originally brought to this country went to various States besides those now known to be infested. Efforts are now being made to trace possible infestation through the broom factories. It has been found that there are such factories in 43 of the 48 States. The names are being supplied to State entomologists and other State officials, who are cooperating with the department in determining the distribution of the corn borer.

Look Out for These "Coffee" Beans.

The Department of Agriculture warns buyers against two so-called coffee beans—the "South American coffee bean," the other as "new coffee bean," which are being exploited by extravagant statements in advertisements. The former is the jack bean, the latter the soy bean. Both are well-known plants, and there is no justification, says the department, either for extravagant advertising under new names nor for exorbitant prices for the seed.

The use of the seeds of various legumes and cereals as coffee substitutes is not new. Legumes which have been used or exploited as coffee beans include the soy bean, cowpea, chick pea, horse bean, and jack bean. Other legumes used to some extent as coffee substitutes, all of which are native species and commonly known as coffee plants, are coffee berry or coffee weed, coffee bean plant or berry, and the Kentucky coffee tree. The seeds of a few of these legumes, especially the soy bean, possess some merit as coffee substitutes, but the desirability of any is a matter of individual taste. This use has led to the extensive advertising of such seeds at various times under misleading names by enterprising individuals, and even to their large use as adulterants of the true coffee.

The soy bean, almost since its introduction into America, has been exploited at different times as "coffee berry," "coffee bean," "new coffee plant," "domestic coffee berry," and "new domestic coffee berry." For many years the soy bean has been used to a slight extent in Europe, especially Switzerland, as a substitute for coffee. In Japan and southern Russia the soy bean is prepared as a coffee substitute and placed on the market. This product is ground very fine and has much the same appearance as coffee.

For those who desire a substitute for coffee as a drink, the dry beans of any variety of soy bean, when properly roasted and prepared, may be used. Prepared as coffee, the soy bean gives a liquid which in color and aroma is similar to coffee, but it has no stimulating effect. Many people fond of cereal drinks think the soy bean coffee fully equal to the cereal-coffee substitutes.

The use of the jack bean for "near" coffee is not a new thing, and its merit for this purpose is no greater than that of many other beans. For forage, the jack bean is not equal to the soy bean, velvet bean, or cowpea, and thus far it has not shown that it is of any particular value in American agriculture.

Lamb Object Lesson Planned.

The value of castration and docking of buck lambs destined for market is attracting attention in many localities where the practice has not been generally followed. In Braxton County, W. Va., for example, the farm bureau plans a demonstration of the value of castration and docking by sending to market one carload of buck lambs that have not been thus treated, and at the same time a carload of buck lambs that have been docked and castrated. The prices will be compared, and a forceful object lesson is expected. Farmers in Gilmer County, of the same State, expect to dock and castrate all their buck lambs in the coming year.

Failure to follow this practice generally is regarded by officials of the Bureau of Animal Industry, United States Department of Agriculture, as a weak point in agriculture, and they recommend the practice to all farmers.

Plant Quarantine Act Violated.

Three violations of the Federal quarantine prohibiting the shipment of currants, gooseberries, and white pine from States east of and including Minnesota, Iowa, Missouri, Arkansas, and Louisiana to the Western States were discovered by agents of the United States Department of Agriculture during the fall of 1919. It was ascertained upon investigation that the nurseries making the shipments did not willfully violate the quarantine, but were ignorant of the regulations. Violations of the Federal quarantines are punishable by a fine not exceeding $500 or by imprisonment not exceeding one year, or both.

The purpose of this quarantine is to prevent a destructive disease of the five-needled pines, commonly called the white-pine blister rust, from reaching the Western States and attacking the extremely valuable western white-pine and sugar-pine forests. This disease may be carried from one State to another upon five-needled pines or upon any species of currant or gooseberry bushes. All nurserymen, therefore, are urged to cooperate with the Department of Agriculture in enforcing this quarantine and thus prevent the disease from reaching the western forests.

Locust Brood Twice Frozen.

People who last year saw the periodical cicada—17-year locust—in countless numbers and later saw the trees all broken and brown as the result, may have difficulty in realizing that this insect is a vanishing species. Yet that is the fact. The clearing of lands and other

causes have already reduced it very greatly and, some time in the remote future, there may be no periodical cicadas. One of the destructive influences is unfavorable weather, though the broods emerge so late in the spring that they do not often encounter freezing. There is, however, at least one notable exception. Brood No. 19 of the 13-year race has encountered freezing weather in Tennessee during two successive appearances. In the middle Tennessee counties in 1894, brood No. 19 appeared in appalling numbers. Freezing weather came about the middle of May and, in many areas, the ground was almost covered with dead cicadas. Most of them had not begun laying. When the brood reappeared in 1907, its numbers in that region were tremendously diminished but, under favorable conditions, it would have reestablished itself. But again, around the middle of May, freezing weather prevailed in middle Tennessee. Brood No. 19 was again frozen before it completed its life cycle. These are the only times on record that freezing has occurred so late in that region.

By these two successive freezes, 13 years apart, it is believed by specialists of the United States Department of Agriculture that the brood may have been exterminated over a large part of the territory it originally occupied in Tennessee. To determine exactly what the effect has been, the bureau will get reports from that section this spring from men who watched the brood there in 1894, the year it was first frozen. Observations will be made at points where the brood developed in countless numbers that year. Brood No. 19 is the largest of the 13-year broods. It has been studied during each of its appearances since 1803 and a complete history of it is kept among the records of the Bureau of Entomology, Department of Agriculture.

College Credit for Club Work.

Cecile Paine, of Admire, Kans., has been a garment-making club member for three years. In her last year of club work she was the State champion. Cecile determined to go to college and take more advanced work. When she entered college this year and told of her three years' experience in club work, she was permitted by the head of the department of clothing and textiles to take the final examination in the first semester course and without making any of the required garments. The grade she received was "good." How does that speak for the garment-making club work in Kansas?

"I can not begin to tell how much help club work has been to me," Cecile remarked. "It not only created a desire for a college education, but also gave me credit for a semester's work in clothing."

Ready for the Hessian Fly.

It is likely that more will be learned this year about the Hessian fly than in any year since Gen. Howe's hired Hessians are supposed to have brought the pest to Long Island during the Revolution. There have been numerous destructive outbreaks of the Hessian fly and a great deal has been found out about it, but nobody was in position to do the job properly. Another outbreak is likely this spring, and the United States Department of Agriculture is ready for it.

Two years ago the appropriation for Hessian fly work was increased sufficiently to provide for the principal needs. Shortly afterwards the Bureau of Entomology established three stations for the purpose of systematic study. They are at Carlisle, Pa., Centralia, Ill., and Wichita, Kans. Each station is equipped with a full set of weather instruments, and several readings are taken each day throughout the year. Sowings have been made at various dates for several years to determine the fly-free period for each year. Experiments have been conducted with many varieties of wheat to determine their fly-resisting qualities. Exhaustive investigations are under way on parasites of the Hessian fly. The main object is to determine what effect the presence or absence of any particular parasite has on periodical outbreaks of the fly.

When the last great outbreak came five or six years ago no such complete preparation for study had been made. If the threatening one materializes this spring the preparation that has been made should result in a number of important studies.

Wild Herds Increase in Decade.

In the 10 years since the Montana National Bison Range was established the 37 buffaloes with which the herd was started have increased to 296. In addition there are on the range 125 elk (not including calves of last year), 33 antelope and 13 mule deer. It is believed that the range is large enough to support 800 bison, 400 antelope, 500 deer, and 800 elk.

Distribute Napier Grass Seed.

Packets of Napier grass seed and Merker grass seed are being distributed through portions of the extreme South and California by the United States Department of Agriculture for the purpose of widely introducing these closely related plants whose value, especially as green fodder for dairy cattle is now well established. Accompanying the allotments of seed are instructions for planting and the making of cuttings in order that the growers can take care of their own and their neighbors' future needs. Napier grass was first introduced by the United States Department of Agriculture in 1913 from Africa and Merker grass somewhat later. Experimental plantings have shown that they will thrive south of a line drawn from Charleston, S. C., to Shreveport, La., also in the southern portions of Texas, Arizona, and New Mexico and in portions of California.

As forage plants both grasses are still regarded as being in the experimental stage, but Federal scientists state they are both very valuable, but further data as to their value in comparison with Japanese sugar cane, corn, and sorghum are needed. Attention is called to the fact that attempts have been made to apply other names to Napier grass, namely, Japanese bamboo grass and Carter grass. The use of these names is not desirable, according to the Government's representatives. Some of the advertisements setting forth the value of these grasses are probably too enthusiastic, but that the grasses are valuable new assets is clearly demonstrated.

Persons in the regions indicated above desiring to secure samples of this seed should write to the United States Department of Agriculture, Washington, D. C.

WILL KILL ALL PRAIRIE DOGS

Cooperating with the Biological Survey of the United States Department of Agriculture, the farm bureau of Fall River County, S. Dak., induced the county commissioners to undertake a campaign for the extermination of prairie dogs, and the county agent was placed in charge of the work. More than 30,000 acres of land infested with prairie dogs were systematically covered, and a saving of crops amounting to $17,612 resulted. Next year the work will be resumed on newly infested lands, and all previously poisoned lands will be gone over and policed until every prairie dog is dead. The task will take at least two years more, besides several years of police duty thereafter.

Every time you buy a War Savings Stamp you drive another rivet into your ship of prosperity.

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Weekly News Letter

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Tells Agriculture's Importance To All Business of the Nation

Secretary Meredith Makes Appeal for Adequate Funds to Carry on Department's Work

Gives Instances of Investments in Agriculture That Have Yielded Big Returns—Curtailed Activities a Danger

"The Department of Agriculture touches you every day in more places than any other department of the Government," said the Secretary of Agriculture, E. T. Meredith, in addressing the Merchants' Association of New York City, March 12. He continued:

"I feel that if I should ask the average business man what he knows of the Department of Agriculture, and what he thinks of it, he would say, 'Why, there is such a department, I know, but I am not a farmer.' Yet, the Department of Agriculture is performing for you every day, over and over and over, in your business matters, in your every-day life, services that I fear many have failed to realize. I hope to talk to you as your representative who has been in Washington making a preliminary survey of the plant you have there, of the organization, to tell you some of the things it is doing, and to ask you, if I may, whether or not it is worth the money.

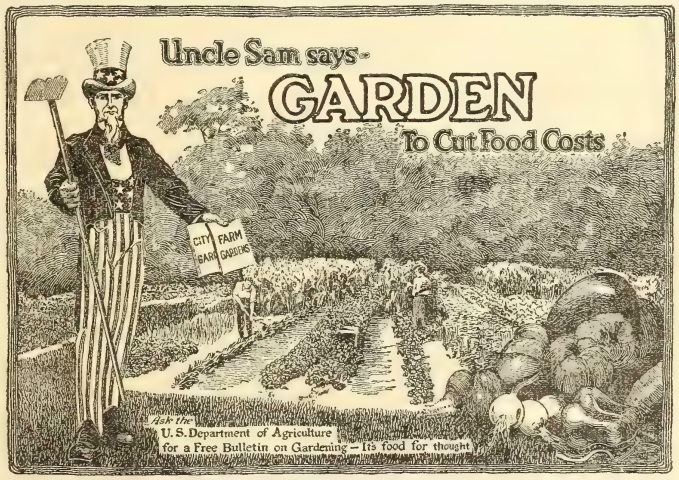
"I am going to tell you my purpose: If I can have you go from this room saying, 'I am going to take more interest in agriculture, I am going to take more interest in the Department of Agriculture, I am going to support in every way I can—by telling others, with financial support, with cooperation—the work that is going on there,' then I shall feel that it was very much worth while to have come here.

To "Sell" Service of Department

"I feel, in the first place, that, in the short time I shall be at the head of the Department of Agriculture, if I simply add myself to the 4,000 men and women in the department at Washington, as earnest workers as there are in the United States in any line of activity, there will be then 4,001 of us, and I will have added only one-fortieth of 1 per cent to that department.

"I hope to make myself more effective than that, so it will be my plan, as one

(*Continued on page 10.*)



THIS POSTER, IN COLORS, IS BEING USED TO ENCOURAGE HOME GARDENING

MEAT PRODUCTION LOWERED BUT 1919 STILL RANKS HIGH

Department of Agriculture Records Show Heavy Decline in Beef

More Veal, Mutton, Lamb, and Pork Slaughtered; High Retail Prices and Less Exports Blamed for Declines

The United States consumed several pounds less per person of beef in 1919 than in 1918. At the same time its exports of beef declined 56.8 per cent from the previous year. The United States Department of Agriculture attributes the decline in domestic consumption to high retail prices and the falling off of exports to the fact that the European countries which took so much American beef during the war are returning to the cheaper sources of supply in South America and Australia. The decrease in beef was so large as to bring down the total meat production 4 per cent lower than in 1918, in spite of the fact that production increased greatly in pork and considerably in mutton and lamb and veal.

Exports of pork and lard in 1919 were unparalleled. The exports were equivalent to 18,000,000 hogs weighing 200 pounds each. A million more hogs were slaughtered than in 1918. Domestic consumption of lard declined to the extent of 2 pounds per person.

The slaughter of calves in 1919 was greater than ever before—1,250,000 head more than in 1918. The drought in the West is ascribed as one of the main causes of so many calves being marketed.

MAKE A THRIFT GARDEN AND CUT THE COST OF EATING—Page 4

165449°—20

Veal is not exported and domestic consumption increased about 1 pound per person.

More Mutton and Lamb

Twenty per cent more mutton and lamb meat were produced in 1919 than in 1918, but the consumption of mutton and lamb is so small that the increase meant only 1 pound per person. This source of meat supply, which decreased steadily for many years, has been on the upward trend since 1917.

These facts are given by the Bureau of Animal Industry, United States Department of Agriculture, in its annual analysis of the meat situation, recently made public.

The outstanding features of the meat situation during 1919 were a heavy decline in beef slaughter with corresponding loss in beef exports, and a great increase in the exports of pork products, although the swine slaughter was only slightly larger than the previous year.

The slump in beef was to some extent offset by substantial increases in the slaughter of veal and of mutton and lamb and the increase in pork just mentioned. But on the whole the decrease in beef was so large as to bring down the total meat production 4 per cent lower than in 1918.

By weight, in terms of dressed meat (without lard), the total slaughter in 1918 yielded a little over 18,000,000,000 pounds, and in 1919 a little under seventeen and one-third billion pounds. The difference was about 715,000,000 pounds.

This seems a large quantity of meat, but nation-wide computations in these times are apt to be in colossal terms, and it must be remembered that the unprecedented total for 1918 was wrought under the impetus of a great war effort, when all production records were shattered. Considering that the armistice had been signed before the close of 1918 and that the conditions facing breeders and feeders were full of uncertainty, last year's production must be rated as a great achievement, since it far exceeded that of any other year previous to 1918.

Pork and Lard Exports a Record

Exports of pork and lard in 1919 were unparalleled in the history of our foreign trade. Total shipments amounted to 1,897,198,000 pounds of pork (mostly bacon and hams), and 784,946,000 pounds of lard. The magnitude of this single branch of our export trade is not easy to realize. Stated in terms of live animals averaging 200 pounds in weight, this quantity of products would represent a herd of approximately 18,000,000 hogs, and therefore one such hog would be "deported" every one and three-quarter seconds throughout the entire year.

The two factors previously mentioned—restricted beef supply and heavy shipments of pork products—had some effect on the home meat consumption, which in total fell from 150 pounds per capita in 1918 to 142 pounds in 1919, a decline of 5.4 per cent. Last year's figure nevertheless was 12 pounds higher than that of 1917, when the people partly abstained from eating meat.

There was a sharp decrease in lard consumption during 1919, amounting to 2 pounds a person, but there was also a relatively large increase in the consumption of mutton and lamb. As a whole, however, the fundamental reason for the decreased meat consumption in 1919 may likely be found in the high retail prices which prevailed throughout the greater part of the year.

The Bureau of Animal Industry annually issues tables showing the salient facts connected with the meat industry of the Nation. The information includes numbers and average weights of animals slaughtered under the Federal inspection and otherwise, quantity of each kind of meat produced and consumed, exports and imports, etc. Tables covering the calendar years 1914 to 1919 are now available and may be had on request.

Cattle Slaughter Fell 14 Per Cent

About 2,000,000 fewer beeves were slaughtered last year than in 1918. It is estimated that the cattle yielded 6,571,226,000 pounds of dressed beef in 1919 as against 7,640,712,000 pounds in 1918, which is a decrease of 14 per cent. The lowest yield in the last six years was 5,638,565,000 pounds in 1914, after which there was a gradual rise each year, culminating in the big record of 1918. Last year's total goes back to slightly below that of 1917. Approximately three-fourths of the cattle slaughter is now conducted under Government inspection.

Relatively the most striking item of all the meat exports in 1919 was the falling off in beef shipments. Compared with 1918 the decrease was 56.8 per cent, the respective totals being 728,236,000 pounds in 1918 and 314,381,000 pounds in 1919. Beef exports from the United States, however, have been almost wholly coincident with Europe's war needs. The trade, it is predicted, will revert to the sources of cheaper beef from South America and Australia.

Home consumption of beef decreased 11.7 per cent in 1919.

Veal Production Increased

In sharp contrast with cattle the slaughter of calves in 1919 was greater than ever before. The drought in the West is ascribed as one of the main causes of the increased marketings. In round figures 9,000,000 calves are estimated to have been marketed last year, which is a million and a quarter more than 1918 and represents an increase of 17 per cent.

As no exports or imports of veal are recorded, the consumption follows the production, and increased from 7 pounds to 8 pounds a head of the population.

Increase in Mutton and Lamb

Sheep and lamb slaughter reached the low point in 1917. About one and one-quarter million head more were marketed in 1918, and last year there was a further increase of more than 3,000,000 head. The increased yield in meat in 1919 amounted to 103,486,000 pounds and was a gain of 20 per cent, but the consumption of mutton and lamb is so small compared with pork and beef that the increase meant only 1 pound a person of the population. The trend, however, is upward.

In this connection an interesting comparison is made with mutton and lamb consumption in certain other countries, according to latest figures obtainable, by which it is shown that this class of meat is especially popular in Britain and largely consumed also in France. The countries for which such data are available and the proportion consumed of mutton and lamb as compared with all meats consumed are given as follows:

	Per cent.
United Kingdom	21.8
France	11.4
Canada	6.6
United States	4.2

Thus the proportion ranges from upward of one-fifth in England to about one twenty-fifth in the United States.

Our foreign trade in mutton and lamb is very small compared with other meats, and the imports generally exceed the exports.

Pork Still Plentiful

A million more hogs were slaughtered last year than in 1918 and thirteen and one-half millions more than in 1917, and although 2,000,000 more hogs were marketed in the record year of 1916 their average weight was almost 13 pounds less a head, so that 1919 stands easily first in pork production. The year's slaughter yielded the enormous total of 9,269,185,000 pounds of pork and 2,119,222,000 pounds of lard.

The record-breaking exports absorbed 20.5 per cent of the pork and 37 per cent of the lard. The large foreign demand helped to reduce the home consumption 3 per cent on pork and 14 per cent on lard, as compared with 1918. Last year's per capita consumption of pork

(Continued on page 9.)

COL. GRAVES TO RETIRE AS CHIEF OF FOREST SERVICE

Salaries Paid by Government Inadequate, He Says

Secretary Appoints Col. W. B. Greeley, Assistant Forester, to Vacancy—Associate Forester also Resigns

After 10 years' service as Chief Forester of the United States Department of Agriculture, Col. Henry S. Graves has notified the Secretary of Agriculture that he intends to ask to be relieved of his position. No immediate move is required, says Col. Graves' letter, but it is desirable to make plans well in advance of the field season.

"Since the pecuniary returns afforded professional and scientific men in the Government service inadequately provide against the exhaustion of the working powers which must inevitably take place in time, and entail sacrifices from which employment elsewhere is free," Col. Graves wrote, "the only course consistent alike with self-respect and a regard for the public interests seems to me to be retirement from office before efficiency has been impaired.

"Present conditions, which amount to a heavy reduction in the rate of compensation in practically every branch of the Government service, emphasize this point of view."

Important Work He Headed

During the 10 years of Col. Graves' administration of the Forest Service great strides have been made in national forestry. The system of operating the public forests has been greatly improved and developed, both in business methods and in the application of technical forestry to the problems of management, while marked opposition to them has been transformed to general support.

Their use by the public has been vastly increased. Individual timber-sale transactions have risen from 5,398 to over 12,500 annually, and the timber cut from 379,000,000 to 705,000,000 board feet. The grazing permittees have increased from 25,687 to 39,152; the number of stock grazed under permit from 9,140,000 to 10,230,000, and the annual receipts of the forests from $2,090,148 to $4,358,414.

A gigantic task of land classification has been nearly completed. This segregates and opens to settlement agricultural lands while insuring that the real forest land will be permanently held and administered as a public enterprise. In the East, negotiations have been conducted on behalf of the National Forest Reservation Commission for the purchase of nearly 2,000,000 acres of mountain lands, and administration of the purchased lands has been inaugurated.

National Forests Developed

A large and forward-looking policy of developing the national forests by road building has been entered upon and recognition of this policy by Congress has been secured, with appropriations totaling $19,000,000 for this work.

As the contribution of the Forest Service to winning the war many men were sent to participate in the forestry operations of the American Army in France, for which the preliminary organization was effected by Colonel Graves in person. At the same time the administrative activities on the national forests were maintained essentially unimpaired and a very large task of aid to the Government in problems relating to war supplies of forest products and their use was successfully assumed.

Finally, a new movement that looks to the right handling of private forests and the halting of extensive forest devastation has been set on foot.

Associate Forester also Resigns

Resignation of Albert F. Potter as Associate Chief of the Forest Service also is announced. Mr. Potter, in asking that his resignation be made effective on April 15, says he feels that "the time has now arrived when I should retire from the Government service and give my attention to private interests."

In asking that the effective date be referred, Col. Graves wrote to Mr. Potter that "your retirement will be a very great loss to the public service. The work that you have done in building up a system of management of the National Forest ranges is a gigantic achievement. * * *

"Previously millions of head of stock ranged over the western mountains without any regulation whatsoever. The ranges were overgrazed and abused. * * * Dangerous erosion was starting in a multitude of places. It was your work which built up a regulation of the National Forest ranges, and substituted orderly use for the chaos which existed before."

COL. GREELEY APPOINTED CHIEF OF FOREST SERVICE

Secretary Meredith has selected Col. W. B. Greeley, Assistant Forester in the Forest Service, for Chief Forester to succeed Col. Henry S. Graves on the latter's retirement May 1.

Col. Greeley is from California, a graduate of the University of California and the Yale Forest School, and has been in the Forest Service continuously since 1904, except for two years of military service with the American Expeditionary Forces. He is 40 years old.

In the Forest Service he has had long and varied administrative experience. He has been advanced through all the technical grades from the lowest to his present position as Assistant Forester. His first assignment was in the southern Appalachians. From 1906 to 1908 he was supervisor of the Sequoia National Forest in California.

After a short period of service in the Washington office he was appointed District Forester in charge of the National Forests of Montana and northern Idaho, with headquarters at Missoula, Mont. In this position it fell to him to protect these forests, having a total area of over 29,000,000 acres, at the time of the great fires in 1910.

The following year he was appointed Assistant Forester and placed in charge of the branch of silviculture, now the branch of forest management, in the Washington office. This branch has supervision of all national forest timber sales and timber cutting, together with other important lines of work.

With the opening of the war it was decided to raise and send to France forestry troops, and their recruiting was assigned to Col. Greeley. To prepare the way for their operations in the French forests, the Chief Forester, Col. Graves, was sent to France and attached to the General Staff. One of his first steps was to send for Col. Greeley to aid in the work. After Col. Graves returned to the United States, Col. Greeley took his place and finally became chief of the forestry section in the American Expeditionary Forces, in charge of 21,000 forestry troops and 95 sawmills, with lumbering operations scattered from the zone of military operations to the Pyrenees and from the Swiss border to the Atlantic.

He was awarded a decoration by the French, in recognition of his war service, as a chevalier of the Legion of Honor, and by the English as member of the Distinguished Order of Great Britain. Last July, after nearly two years of foreign service, he was brought back to the United States, and in October resumed his old position in the Forest Service, but retaining a commission as lieutenant colonel in the Engineer Officers' Reserve Corps.

He is also a fellow of the Society of American Foresters and an author of various publications and papers on forestry subjects. His high professional standing, broad training, and experience,

(*Continued on page 16.*)

EVERY HOME NEEDS A THRIFT GARDEN THIS YEAR

One Sure Way of Cutting the Cost of Living Is to Grow Your Own Food

GOOD SEEDS ESSENTIAL FOR GOOD GARDEN GROWTH

Bring out the left-over seeds and those saved from last year's garden, spread them on a table, examine them closely, and see how many are worth planting in the garden this year.

As a rule it does not pay to plant old seeds, and unless those left over from last year are in first-class condition they had best be discarded, United States Department of Agriculture specialists advise. Even though they look to be all right nothing but a germination test will determine their value. The test may be made in two or three ways, the easiest being by means of a small box of sand in the window or in a warm place in the house. From 50 to 100 seeds of each sample to be tested should be counted out and carefully planted in the moist sand. After the sprouts have appeared another count can be made to determine the percentage that have germinated. If less than 65 or 70 per cent have grown the seed by all means should be discarded.

A study of the seed catalogues will serve to refresh the memory and call attention to the special things that are being offered. A list of needed seeds should be made up, and the order should be placed immediately, as the seedsmen are not so busy at this time of year and can give special attention to early orders. Later the seed stores become crowded and it is a question of waiting in line and often taking undesirable varieties, because the supply of the desirable seeds has become exhausted.

Do not order more seeds than are necessary, but be sure that those purchased are the best the market affords. Soil and seeds are the first essentials to a garden. Have them both right before you make any plantings.

COST OF HOME GARDENING ONLY LITTLE BIT HIGHER

Food prices are high, but food grown in home gardens costs comparatively little more than before prices began to ascend. This additional reason for home gardening in 1920 is put forward by specialists of the United States Department of Agriculture. They quote a letter from a New York business man. He wrote:

"Food costs to-day are practically double those of 1914, but the cost to plant and care for a home garden has not increased to any considerable extent. The clerk, salesman, or professional man who grows his own vegetables and small fruits reduces the family food bill. More important still, he increases the total food supply of the country. He enters the producing class. To a very appreciable extent the home gardener can solve the high cost of living."

How can the man who never gardened learn how to garden? One good way is to write to the United States Department of Agriculture, Washington, D. C., or to his State college of agriculture for a bulletin that describes every step in making a back yard or vacant lot help feed his family.

WHAT TO PLANT IN YOUR GARDEN

What crops to plant in the home garden will depend upon the size of the garden, the size of the family, and the size of the family's appetite. Where the garden space is extremely limited only those crops that will produce a considerable quantity of food on a small area should be included.

As a rule, home gardeners, especially the beginners, devote too much space to lettuce and radishes and too little to beets, carrots, beans, onions, and tomatoes, according to United States Department of Agriculture specialists. Where the family is small it is easy to overplant most of the garden crops. The surplus of certain vegetables can be saved by canning and drying, others like lettuce and radishes are a loss unless some kind neighbor will use them.

Children eat almost as many fresh vegetables as grown-ups and should be counted as "full hands" in estimating the amount of space to devote to any vegetable. The size of the family appetite is liable to expand considerably when the vegetables are brought fresh from the garden, and it is always safe to have a plenty of the more staple vegetables. Corn and Irish potatoes occupy too much space for planting in the very small garden. Tomatoes should find a place in every garden, as should spinach, chard, and other kinds of greens.

The city home garden utilizes idle land and spare time for food production.

FEW TOOLS ARE NEEDED FOR HOME FOOD GARDEN

Thrift gardens should be thrift gardens from start to finish, and the vegetables grown in them should not cost as much as it would cost to buy them on the market. Every item of expense should be kept down. This is especially true in the purchase of tools, according to United States Department of Agriculture specialists. Some gardeners have an idea that they must have a large assortment of hoes and rakes, wheel hoes, seed drills, spraying outfits, and special equipment before they can begin to garden. But the tools actually required in the cultivation of a thrift garden are few and simple. A spade or spading fork, a steel rake and a hoe, together with a piece of string and two small wooden stakes, are the chief essentials. There are a number of other tools, such as a trowel, sprinkling can, wheel hoe, seed drill and wheelbarrow, that may often be used to advantage, but they are not absolutely necessary.

It is important, however, that the few essential tools be properly cared for and used frequently. Every time they are used they should be cleaned and stored in a dry place. Also, they should be kept sharp so that the work may be done easily and thoroughly. A good job of hoeing can not be done with a dull or rusty hoe.

If the garden is located at a distance from the house, a small, low, flat toolbox, long enough to accommodate the hoe and rake, should be provided. The top of this box may be covered with a piece of roofing paper to make it waterproof, and a small lock should be provided for safety. The loss of one good tool will more than offset the cost of a toolbox of this character.

"DUMPS" MADE INTO GARDENS

Is there an old, weed-grown "dump" somewhere in or near town? It's a fine place for a garden, very likely. Some of the best community gardens in many large cities have been grown on this class of land, according to the United States Department of Agriculture. The evolution of the dump into a garden

has meant production instead of waste and beauty instead of ugliness.

Frequently the soils of these dump lands are very rich, and weeds are rank upon them. The growth of weeds is always the best indication as to the fertility and quality of the land.

Points to Remember in Using Fertilizers in Your Garden

Manure is scarce in and around cities. Commercial fertilizers must be depended upon primarily for adding fertility to garden soils. It pays to use the best grade of commercial fertilizers. When the home gardener buys fertilizers he pays for nitrogen, phosphoric acid, and potash, and if he can secure the required amount of these elements in a small quantity of material, so much the better, as he will avoid the handling of a greater weight upon which freight and other costs have been paid. A fertilizer containing from 4 to 6 per cent of nitrogen, 8 to 10 per cent of available phosphoric acid, and 3 or 4 per cent potash is generally recommended for use on home gardens by specialists of the United States Department of Agriculture.

One pound to 30 feet of row is equivalent to an application of 500 pounds to the acre. One pound to 15 feet of row is equivalent to an application of 1,000 pounds to the acre, and an application of 1 pound to 8 feet of row is practically equivalent to 2,000 pounds of fertilizer to the acre.

Commercial fertilizers are high at present and no more than is absolutely necessary should be used. Care must also be taken in their application, as there is constant danger of burning the roots of the plants, especially where the fertilizers are applied directly in the rows. The best results are generally secured where the fertilizers are applied and raked in a few days before sowing the seeds or setting the plants. In this way they become more or less mixed with the soil and there will be little danger of doing the plants an injury.

In many sections of the country nitrate of soda is used as a stimulant to force the growth of the plants after they are started. Nitrate of soda is a concentrated fertilizer furnishing nitrogen, that element which makes the green and vigorous growth in plants, and should be used sparingly to avoid injury. The usual custom is to scatter a little (1 pound to 100 feet) nitrate of soda along the rows of plants and mix it with the soil by means of a hoe or rake. Another method is to dissolve a tablespoonful of the nitrate of soda in a pailful of water and use this solution for watering the plants, taking care that only a small quantity of the water is applied around each plant. It is vastly better to make frequent light applications of the nitrate rather than to apply too much at one time.

PLANT GARDENS ON VACANT LOTS

Vacant city lots would not be of much value for growing corn or wheat, but these valuable pieces of dirt are often just the place for growing a good vegetable garden. Some of the best home gardens have been grown on vacant lots that was not much more than a stone pile to begin with. In one case enough old foundation stones were removed to build a wall along the two exposed sides of the lot.

EACH FARM SHOULD GROW SUPPLIES FOR ITS FAMILY

In a series of 16 tests to show whether or not a southern farm is efficiently managed, the United States Department of Agriculture gives first place to this one: "Is the farm producing in ample quantities for the welfare of the family such of the family foods as are adapted to local conditions."

The value of the family living furnished directly from the farm, it is stated, is one of the important factors determining the amount of the income of the farm and the degree to which the farm business is safe and profitable. This is true of all farms, but more especially of the smaller one.

The garden and live stock supply the larger part of the family food and are usually cared for at times that interfere comparatively little with the regular commercial enterprises, and by labor which otherwise would not be utilized. Up to a considerable size of farm business, it has been found that the family food, plus fuel and shelter furnished by the farm, equals the rent for the entire farm, or the interest on the whole farm investment. These statements are supported by the results of surveys made in Brooks and Troup Counties, Ga., Gaston County, N. C., and McLennan County, Tex.

The well-managed farm, it is shown, should be planned in such a way that it will produce for home consumption garden vegetables and fruits, cereals, sirup, dairy and poultry products, and meat. For a family of five adult persons, or their equivalent, the requirements are a vegetable garden of two-thirds of an acre, a fruit garden of one-half an acre, one-third of an acre for a winter supply of white potatoes, one-half acre for late sweet potatoes, one-half acre of sugar cane for sirup and sugar, and an acre of corn for corn meal. These items make up a total of 3½ acres for plant products to supply family food.

The 16 tests, with an explanation of the methods for applying them, are contained in United States Department of Agriculture Circular No. 83, "Testing Farms in the South for Efficiency in Management," copies of which may be had free by writing to the department, Washington, D. C.

Southern Women Are Shown How to Beautify Farm Home Grounds

For over a decade the home demonstration agents in the South have been teaching farm women easier and better methods of doing their housework, caring for their families, and conducting home industries. During the past year, they have been teaching, in addition, the beautifying of the farm yard.

The country woman, like every other normal woman, is hungry for beauty, but in the past she has had less of it in her life than has her city sister. Too many farm homes inside and out are unattractive, yet beauty in a country yard costs little except effort, for the finest effects can be obtained by the use of native trees, shrubs and vines. A demand for information on the beautifying of the home by the southern women in the rural districts is the reason that it has been taken up definitely as a part of the extension work in the South. The response and results in every State have been more than were looked for.

In Donley County, Texas, an impromptu meeting of this kind recently brought out 38 country women, all intensely anxious to learn what the home demonstration agent could teach them about making the surroundings of their homes more attractive.

The demonstration was given at the home of one of the women who had recently built a new house and who wanted to have the settings for it right. The importance of planting and arranging perennial vines as a background on the porches and fences was one point stressed by the extension worker. Instruction was also given in arranging shrubbery so the low growing kinds would be in front of the taller. Where flowering plants were to be used the necessity of planting colors which would harmonize well was emphasized. In fact, an intensive course in landscape gardening on a small scale was given to the women.

LOUISIANA OPENS BIG ATTACK ON PINK BOLLWORM OF COTTON

Federal Officials Commend Steps Against Dangerous Insect

Conference Recommends Prohibition of Cotton Planting in Infested Areas with Compensation for Planters Loss

Louisiana is going into the fight for the eradication of the pink bollworm in a manner that has the thorough approval of officials of the United States Department of Agriculture who attended the conference on the pink bollworm situation in New Orleans March 5.

This conference, called by the Louisiana division of the American Cotton Association, went on record as favoring the prohibition of cotton planting in infested areas for such periods as may be designated by the Federal Horticultural Board, and full compensation to planters within the noncotton zones for whatever financial damage or loss they may sustain by reason of the prohibition. Steps were taken to raise a fund of $225,000 or $250,000 for this compensation. The resolutions adopted concluded with the recommendation "that all citizens of the State of Louisiana be urged to support the movement to avert disaster to the cotton producing industry of the State and of the South."

Legislation Necessary

A telegram, in which the governor and the governor-elect joined with the president of the Louisiana division of the American Cotton Association, was sent to all members of the State legislature asking them to indicate as soon as possible whether their support can be relied upon for such legislation as is necessary for pink bollworm eradication. This legislation will include a bale tax of 50 cents on the basis of average production for the past five years, or other adequate means to raise money for the compensation of planters in the noncotton zones.

The pink bollworm is now known to be present in three parishes of Louisiana—Cameron, Calcasieu, and Jeff Davis, all of them in the southwestern corner of the State. The officials of the United States Department of Agriculture entertain no doubt that they will have the full cooperation of the State of Louisiana in eradicating the pest from these parishes and anywhere else that it may be discovered in that State. If similar cooperation can be secured on the part of Texas, the difficulties that now appear will be greatly reduced.

States to Establish Quarantines

On the day prior to the New Orleans conference, official representatives of practically all the cotton-growing States met in Vicksburg, Miss., and agreed that they would promptly establish State quarantines against Texas and Louisiana, prohibiting the shipment of both lint and seed from those States into other cotton-growing territory until all possible precautions are taken to guard the cotton industry against the menace. The Department of Agriculture will probably find it necessary to establish such Federal quarantines as will complete the safeguarding of the country against the pink bollworm.

Proportion of Various Crops Influences Farm's Earnings

What proportion of cropped acres on any farm should be devoted to cotton in order to make the farm as a whole most profitable?

This is one of the questions the United States Department of Agriculture insists upon having answered in determining efficiency of southern farm management. A large number of farm studies have been made to determine the proportions. Figures are quoted from a survey made in Sumter County, Ga.

Of 9 one-mule farms the best 5 averaged 23 acres of cropped land to a mule. Of this, 9.8 acres, or less than half, was planted to cotton. The remainder was divided as follows: 7.2 acres in corn; 2.7 in oats or oat hay; 3.6 were second cropped with cowpea hay, leaving 3.3 acres for miscellaneous purposes.

Of 23 two-mule farms the best 5 averaged 30.2 acres of crop land a mule. Of this, 10.6 acres were planted to corn; 3.9 to oats and oat hay; 2 acres were second cropped with cowpea hay; 14 acres were devoted to cotton; and 1.7 to miscellaneous crops.

Of 25 three-mule farms the best 5 averaged 32.58 acres of crop land a mule, of which 17.47 acres were planted to cotton, the remainder going largely into food and feed crops.

Of 18 four-mule farms the best 5 averaged 30 acres of crop land a mule; 18.85 of this went into cotton, the remainder being planted to supply crops.

Of 19 five-mule farms the best 5 averaged 27.1 acres a mule and planted 15½ acres of this in cotton.

The best 5 of 15 six-mule farms averaged 34½ acres of crop land a mule and planted 19½ acres of this in cotton.

Full information concerning this and the 15 other efficiency tests are embodied in Department Circular 83, "Testing Farms in the South for Efficiency in Management," copies of which may be had free on application to the Department of Agriculture, Washington, D. C.

MUST REINSPECT GRAIN THAT HAS BEEN TRANSFERRED

Inspection certificates issued in accordance with the United States grain standards act on arrival of grain can not be used on "out" shipments if the grain has beeen transferred through an elevator to another car.

Federal supervision officials of the Bureau of Markets, United States Department of Agriculture, have recently found that there is some misunderstanding in this point. The amendment to the rules and regulations under the act, which permits certificates covering arrival inspection to be used for further shipment of such grain not later than the close of the second business day after the date of such inspection, specifically states that the grain shall not be "removed or transferred from its container or otherwise changed in identity."

This amendment was intended to save the time required for an out-inspection of cars of grain which are reconsigned immediately after arrival, when the conditions under which the grain was originally inspected have not been changed.

DECREASE IN 1919 CATTLE RECEIPTS

Last year 12,152,000 animals, excluding calves, or 784,000 less than in 1918, were sold by farmers at the great primary markets of the middle west—Chicago, Kansas City, Omaha, St. Louis, St. Joseph, St. Paul, and Sioux City. The record year in these markets was 1918 for both cattle and hogs. Of the latter, 25,462,000 were marketed in 1918, and 25,280,000 were marketed in 1919. The receipts for sheep, including lambs, made a new record in 1919 when 14,308,000 animals were marketed. These figures are in accordance with reports received by the Bureau of Crop Estimates of the United States Department of Agriculture.

The home vegetable garden should be a family interest and all members of the family who are able to do so should take part in its cultivation. There is no better form of outdoor exercise than moderate working in the home garden, and few lines of recreational work will give greater returns for the time employed.

Lumber Grading Systems Are Explained to Minimize Confusion in Industry

Grading has been one of the mysteries of the lumber business. Years of experience are required before one can become proficient in grading lumber even of a rather restricted range of species, and very often an expert in grading under one set of rules knows little of the rules used for other species and other parts of the country. A publication just issued by the United States Department of Agriculture as Department Circular 64. "How Lumber is Graded," gives in a few pages the essentials of nearly all the grading rules now in use in the United States.

Different Rules in Different Regions

The hardwoods, according to this publication, are largely graded under the rules of one association; while the softwoods are graded under a considerable number of rules. Not only are the different kinds of softwoods graded under different rules, but the same kinds are, in a number of cases, graded under different rules in different parts of the country and even in the same regions. Such a condition causes frequent misunderstandings between buyer and seller and is confusing to one not familiar with the grading situation. It is for the purpose of helping to minimize the possibilities of such misunderstanding that this pamphlet is issued.

It is pointed out that "the grading rules in general use at present with very few exceptions have to do only with defects and do not take into account the quality of the wood itself. That is, if two boards of the same species are clear or if they have similar defects, both boards are placed in the same grade regardless of the quality of the wood itself. As a matter of fact, the wood in one board may be dense, heavy, and strong, and the wood in the other light and weak. For some purposes, such as siding, ceiling, or finish, it may not matter whether dense or lightwood is used; but for other purposes, such as vehicle parts, structural timber, or flooring, where strength or hardness is a prime requisite, the wood must be dense to give satisfactory service."

Forest Service Favors Density Rule

The Forest Service has for some time advocated the adoption of the "density" rule for the grading of lumber in which strength is a requirement. Two of the largest lumber associations have adopted this rule. It "requires a proportion of one-third summerwood (the hard, dark-colored part of the annual ring) in the cross section and at least six annual rings per inch, and disregards botanical distinctions in the southern pines."

FARM TESTS FORMULATED FOR EFFICIENCY IN MANAGEMENT

Practical tests by which agricultural extension workers, county agents, and farmers themselves may roughly determine whether or not a given farm in a group is being efficiently managed are outlined in United States Department of Agriculture Circular No. 83, "Testing Farms in the South for Efficiency in Management." The department believes that it is the duty and the privilege of every farmer to manage his land, labor, and working equipment to produce the largest possible net returns consistent with good farm practice and living conditions. The tests given in the circular are intended to help him attain this result. The tests are intended to be based on farm surveys, business summaries, and farm practice records for the communities in which the farms considered are located. A business summary, it is stated, should be prepared for each farm, an average summary for all the farms in the community group, and an average summary for a given number of the best farms in the group. With these summaries as a basis, a farm should be measured individually, the tests being applied in such order as circumstances and good judgment may suggest. The tests are designed to answer the following questions:

Is the farm producing in ample quantities for the welfare of the family such foods as are adapted to local conditions?

Is the farm producing, so far as they can be produced economically under local conditions, the necessary feeds for the proper feeding of the family live stock, the farm work stock and the commercial live stock of the farm?

Are the crops and live stock produced on the farm for sale to the nonproducers of the community or for export to other communities such as can be made profitable?

Are the yields per acre high enough to make the best possible returns for capital and labor expended in producing them?

Is the farm making special efforts toward the use of available farm manures, including the growth of summer or winter catch and cover crops of small grains or legumes between the rows of cotton, corn, or other intertilled crops, and on open fields and idle lands?

Are the varieties of crops grown the best varieties for large yields and profitable production under existing conditions, and is special attention paid to the selection and care in testing of farm seeds?

Are the methods of soil preparation and the cultivation and handling of crops in accordance with the best-known practices for the region, and are they adequate for the most profitable production?

Is the farm making judicious use of commercial fertilizers in accordance with the best-known practice of the region?

Is the quality of the farm live stock satisfactory?

Is the management of the live stock, both productive and work stock, in accordance with the best-known practice for the region?

Aside from the family live stock and the work stock, is the farm carrying enough productive stock to convert surplus pasture and unsalable crop by-products into profitable forms?

Are the crop acreages adjusted to each other for highly profitable production?

Are the labor requirements of the productive enterprises as organized sufficient to make the best utilization of the work stock equipment necessary to operate the farm?

Is the present equipment of work stock sufficient to operate the farm efficiently? Are the man labor requirements of the productive enterprises as organized sufficient to make the best utilization of the regular men necessary to operate the farm?

Is the working capital per mule adequate for the efficient operation of the farm?

Copies of the circular may be had free by addressing the United States Department of Agriculture, Washington, D. C.

The ideal garden spot is seldom found, but it is often possible to choose a location that embodies a number of the more important conditions and then supply others. The difficulties of the first season are greater than those of subsequent years, and a garden plat if properly handled will improve with each season's cultivation.

Weekly News Letter

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ARE CROPS AND LIVE STOCK BEING PRODUCED PROFITABLY?

"Are the crops and live stock that the farm is producing for sale to nonproducers of the community or for export to other communities such as can be made profitable?"

This question is given special importance by the United States Department of Agriculture in a series of 16 tests to be used by farmers and agricultural workers to determine whether or not farms in the South are being efficiently managed. The best guide in this particular, the department says, is the practice of the community. The enterprises adopted for any farm should be those that are found generally on the farms of the community, except that a limited demand from the nonproducers of the community will sometimes afford a few farmers opportunity for raising a product not generally grown locally and for which many local farms are not adapted.

Some farms will be especially adapted to cattle raising through an abundance of suitable but unsalable by-products, cheap pasture, or pasture land not adapted to cropping. Other farms may develop a considerable business in the production of pork or of pigs by supplying farms where brood sows are not kept. An occasional farmer can develop a business of producing seeds of particular crops to meet the needs of those who lack suitable skill and experience in that line. Such enterprises, it is pointed out, should be taken up gradually and after full investigation as to their value.

Full details of these and the 15 other points in testing farms are given in United States Department of Agriculture Circular No. 83, "Testing Farms in the South for Efficiency in Management," copies of which may be had free on application to the Division of Publications.

NEW POISONOUS PLANT DISCOVERED IN SOUTH

A plant which seems likely to be of considerable danger as a cause of stock poisoning in the Southern States has come into notice within the past two years, says the United States Department of Agriculture. It is a small shrub or tree belonging to the pea family, which includes such plants as locusts and mesquites. There is no popular name for it in general use. It is known to botanists as *Daubentonia longifolia*. The leaflets are alternate with 12 to 60 leaflets and the flowers range in color from scarlet to bright yellow. The pods are peculiar, having four wings, and the seeds are separated from one another by cross partitions.

The plant grows in the Gulf region and in Texas to the northeastern border. It is very abundant along the lower Rio Grande and in the neighborhood of San Antonio. All reported cases of poisoning have been of sheep and goats in Texas, but it is possible that cases may occur in other localities and that, under suitable circumstances, cattle would be affected.

In light cases, the main symptom is depression, usually accompanied by diarrhea. When animals are fatally poisoned, there are no pronounced symptoms. The animals become weak, the breathing is labored and they die with very little struggling. A considerable period, sometimes a full day, elapses between eating and the appearance of any symptoms of poisoning.

The poison appears to be in the seeds. The pods themselves have little if any poison, and the green plants are not known to do any harm. Less than two ounces of the seeds may kill a sheep and a little more than one ounce may produce very harmful effects.

Little can be done in the way of remedies, say the department specialists. Laxatives like Epsom salts aid in the elimination of the poison, but the main reliance must be in prevention. If the herders know that Daubentonia is poisonous, they can ordinarily handle the flocks so as to avoid losses. Cases of poisoning occur in winter and ordinarily in areas where food is scanty. It is always poor economy, say the specialists, to keep animals on short feed. When this is done they will eat poisonous plants if they have a chance. The effects of the poison continue for several days and animals that are poisoned and do not die require especial care until they fully recover.

The known facts are embodied in Department Circular 82, "A New Sheep-Poisoning Plant of the Southern States," copies of which may be had free on application to the Division of Publications, United States Department of Agriculture.

MOST FIRES PREVENTABLE; HOW TO STOP DESTRUCTION

Millions of dollars worth of agricultural wealth is destroyed annually by fire in the United States. The United States Department of Agriculture, in emphasizing the fact that all fires, except those of incendiary origin, are preventable, summarizes the points which the farmer must keep in mind, as follows:

All matches are a possible source of danger.

Smoking or striking matches in barns or stables should be prohibited.

Pouring gasoline or kerosene on a smouldering fire endangers life and property.

Open-flame lights should not be used in a garage or other building containing a gasoline engine or stored gasoline.

Never test for gas leaks with a burning match.

Every open fire should be watched until it is out.

Fire attracts children; children cause many fires.

All oiled rags should be kept in a metal container with air-tight metal cover.

The floor beneath stoves should have metal covering.

The fire hazard should be considered in locating new buildings.

Woodwork should not come in contact with any chimneys.

Remember that responsibility for fires rests on individuals.

Farmers' Bulletin "Fire Protection and Fire Fighting on the Farm," just reissued by the United States Department of Agriculture, will be sent to anyone addressing a request to the department at Washington, D. C.

Labor Utilization Is Important Factor In Efficient Management of Farms

The question of whether or not a farm is efficiently managed is answered in large measure by determining whether or not the productive enterprises on the farm as organized are sufficient to make the best utilization of the work stock equipment necessary to operate the farm and the time of the regular men on the farm. This statement is made by the United States Department of Agriculture in connection with a series of tests to determine the relative efficiency of southern farms.

A great number of farm management studies were made to furnish the basis for the tests. In connection with labor utilization, figures are quoted from a survey made in Sumter County, Ga. On the best one-mule cotton farms in that county an average of 23 acres of cropped land, 4 acres of which were double-cropped, were worked with one mule. The conclusion is reached, therefore, that on farms of this type having less than 27 acres of crops the mule requirements are not sufficient to utilize properly the labor of the one mule necessary to operate the farm. It is likewise estimated that two-mule cotton farms must have not less than 64 acres of crops, three-mule farms not less than 104 acres of crops, and so on with the larger mule equipments, in order to account for the best utilization.

Better Records Made

While these figures represent the averages of the best farms in certain groups and are said to make an excellent and conservative guide, they do not represent the highest possible efficiency. There was one farm in Sumter County on which each mule worked an average of about 40¾ acres of crops.

If the organization of the farm is not such as to reach high efficiency in utilizing the work stock equipment, it is suggested that attention be given to bringing idle tillable lands into use, to reclaiming wild land, or to renting additional acres. On the other hand, if it is found that the work stock equipment is not sufficient to operate the farm profitably, it may be advisable to rent out a few acres and bring the farm down to a size that can be operated efficiently by the present outfit. This, of course, is to be considered only in cases where the requirements of the farm can not be made sufficient to justify the addition of another mule.

Getting a Line on Labor

Full utilization of man labor is, of course, quite as important as that of mule labor. The method of arriving at the percentage of efficiency with which the time of the men is utilized is this:

Determine the total number of days' work required by all the productive enterprises. Subtract from it the number of days necessary to do the contract and miscellaneous day wage work. The remainder is the number of productive days' work required of the regular men on the farm. Divide this number by the number of days available for field work at their command. The quotient is the percentage of efficiency. It works out this way:

Suppose that there were 212 days during the year on which work could be done in the field. Then suppose that the owner of the farm actually had work to do for only 175 days during the year. One hundred and seventy-five is 82 per cent of 212. The owner of the farm, therefore, reached 82 per cent in efficiency in utilizing his own labor.

Full details as to this and the various other tests used in demonstrating farm efficiency are given in United States Department of Agriculture Circular No. 83. Copies of the circular may be had free by writing the Department of Agriculture, Washington, D. C.

MEAT PRODUCTION LOWERED BUT 1919 STILL RANKS HIGH

(*Continued from page 2.*)

was, in fact, smaller than in any recent year except 1917.

Horses Slaughtered for Meat

As a sign of the times it is of interest to note the Federal inspection of horse slaughter, which began in September, 1919. Up to the end of the year 433 horses were so slaughtered, and about one-half of the resulting meat was certified for export.

There had been no previous Federal supervision of horse slaughter since 1903. At that time inspection was limited to a single establishment which had been in operation for several years. The inspection was necessary, as in the present case, to permit of consignments being made interstate and for export.

The consumption of horse meat is not uncommon in certain parts of Continental Europe, and was in vogue long before the late war. The fact that horses are slaughtered in non-Federally inspected establishments in the United States is perhaps not so well known. Inspectors of the Bureau of Animal Industry reported in 1918 that horses were being so slaughtered at six widely separated places situated in the East and Middle West and on the Pacific coast. The output of these places aggregated about 2,000 or more carcasses annually. As to the consumption of this horseflesh, it is known, of course, that zoological gardens, menageries, etc., account for a large part of it for the feeding of flesh-eating animals.

The following data are quoted from a table, prepared by the Bureau of Animal Industry, showing the annual per capita consumption of meat in the United States. They present some interesting contrasts:

Per Capita Consumption of Meat

Meat.	1917	1918	1919
	Pounds.	*Pounds.*	*Pounds.*
Beef	61.23	66.74	58.95
Veal	6.39	6.90	7.96
Mutton and lamb	4.59	4.95	5.96
Goat meat	.18	.14	.09
Pork (excluding lard)	57.59	71.35	69.08
Total meat	129.98	150.08	141.98
Lard	11.51	14.57	12.48
Total meat and lard	141.49	164.65	154.46

As before stated, consumers in 1917 refrained to some extent from eating meat. Pork products were especially desired for export, and the result for the year was a smaller total consumption than ever before recorded.

Producers came to the rescue in 1918 and provided such an abundance of animals that a large surplus was available for the home consumption after meeting the export requirements. In 1919 the shorter supply of cattle and augmented shipments of pork products brought the total consumption down 8 pounds a person.

The quantities of each kind of meat above given, it is explained, are figured from a "dressed," or butcher's meat basis, which includes the bones and butchers's waste. They include also such parts as are canned and cured—bacon, hams, canned meats, etc. On the other hand, there are considerable quantities of edible meat which are not included in the dressed weights of the animals, such as the liver, pluck, etc. Allowing the one to offset the other the figures used are considered as approximating the actual meat consumption.

AGRICULTURE'S IMPORTANCE TO BUSINESS OF NATION

(*Continued from page 1.*)

of the things that I shall do—aside from helping in the product of the organization, aside from keeping it going smoothly—to 'sell' the service of the department, if you like, to more men and to more women in America than are now using it.

"The product of our organization is service; and it is a wonderful service. I wish I had the time to tell you of it in detail. I wish we had the time it takes to play nine holes of golf, or the time it takes to attend the theater in an evening. Then I might possibly get started. I haven't that time, and I do not expect to run over my time, but I do hope to give you some idea of the importance and the size of this organization.

"In the first place, we have 21,000 employees, something over 4,000 of them in Washington and 17,000 throughout the United States. The 17,000 come in contact day after day with the farmers and with the business men throughout the country. They have to do with the county agent work, with the eradication of diseases among live stock, plant diseases, insect pests, market reporting, weather service, the protection of the forests, and thousands of other activities.

"The Department of Agriculture is divided into 17 bureaus. The present regular appropriation is approximately $33,000,000. When you say, however, that you are appropriating $33,000,000 for agriculture you are hardly telling the real fact. It is really something like 10 or 12 millions, because approximately $2,000,000 is set aside for the Weather Service, some $6,000,000 for the Forest Service, and provision is made also for the maintenance in part of the meat-inspection service, for the administration of the food and drugs act, and so on, so that the actual amount of money spent by the department directly for agriculture is, in round numbers, 10 or 12 millions of dollars. I would like to have you business men get that firmly fixed in your minds, that it is not 33 million dollars, but only 10 or 12 millions.

"When you realize some of the results that have been accomplished with 'only 10 or 12 millions' you will put the emphasis on the 'only,' because it is a mere trifle, compared with the results.

How Department Affects Every American

"I want to point out some of the places that the department comes in contact with you. In the first place, realize this, that the industry the Department of Agriculture is designed especially to serve has an invested capital of over $80,000,000,000. You can take all the railroads in America, all the manufacturing institutions, iron, steel, and all the rest—some 75 other industries—add them all together, and you will have just met the capital invested in this business of agriculture. The agricultural and live stock product last year was $25,000,000,000, equal in one year to our national debt at the present time—one-half the wealth of France.

"Isn't it a big subject? Isn't is something worthy of attention? Isn't it something worthy of this 'only 10 or 12 million dollars?' How do these bureaus come in touch with you? Take one feature of the work of the Bureau of Animal Industry. Why, the ham you ate this morning for breakfast was passed upon by an inspector of the Bureau of Animal Industry. The method of handling your eggs in storage and transportation has been studied and improved; the Bureau of Chemistry has seen to it that there are no injurious ingredients in your catsup. When you put maple syrup on your cakes, it has seen to it that if the product was labeled maple syrup it was maple syrup.

Tires, Clothes, Shoes, Medicine

"The cotton in your automobile tires is stronger and more durable than that used in the past because the department has developed long-staple cotton industries; has taught farmers how to produce cotton of better fiber. Your clothes—the department touches you there not only through its work with cotton and wool but through its extremely valuable results in developing dyes and dye materials which will help to make us independent of foreign supplies. Your shoes—the specialists have developed methods of treating leather that prolong its life, and other specialists are teaching farmers how to prepare hides and skins with the least damage and waste. Your medicine—the department sees to it that the labels on it do not say it is a remedy for such and such a thing unless it actually is a remedy. Even in your recreation hours the department is with you. Its protective hand reaches out to the wild birds and animals and provides game for your hunting. It keeps the National Forests spick-and-span for your vacation. The Weather Service is a part of the Agricultural Department. You know that it puts out the storm signals; you know it forecasts the weather, but do you know that it influences the icing of the cars for your fruit? Do you know that it influences the shipment of your vegetables? There are a dozen places that the Weather Service touches you that you do not realize.

"Good roads have been devised and tested by the Bureau of Public Roads, and the wear and tear under all sorts of traffic conditions have been studied by it. This bureau will supervise the expenditure of Government and State funds for roads in the next 12 months of considerably more than half a billion dollars. Did you ever stop to think that the head of the bureau receives only $6,000 a year?

The Type of Men

"I wish I had the time to tell you something about the men and women employed in this Department of Agriculture. There isn't a more earnest, more loyal group of men and women in America than I have found in this department. A young man who is of the utmost importance to the department and to me, so far as my effectiveness is concerned, had on his desk, when I came to the office, an offer from a commercial concern of an income of $325 a month more than what the Government paid him. He asked me what I would advise. I said, 'I would advise you to take it, and then I will veto it, because you must not take it, in the interest of the hundreds of millions of people in America." He is vital to the department. He did not accept the offer. There was a chemist who has had seven offers. He is now drawing $5,000 a year. His last offer was $16,000; he turned it down, saying, 'No, I will serve.'

"It is so all through. The men in the department are protecting your food, protecting your crops. Many of them are working more hours a day, with more earnestness, than the average man in our commercial institutions. That is a thing I would like to have you know. It is not new to men who have had contact with Washington in the past, but a large number of people do not realize it. I have not changed my ideas on the subject a particle since I have been there.

"I think it wrong; I think it is poor advertising—you know I can not get entirely away from advertising—to be talking all the time about the waste, and about the grafters, and soft snaps, and all that, in Washington. I heard a lady say the other day that there were things they did not discuss in her family before the children as they were too young to understand; and that she thought it was all wrong for us in America to be complaining about the Government, to be saying that this man and that department is inefficient, even dishonest, and so on, because it is poor advertising. There may be somebody standing around who believes you mean it; there may be some foreigner who is not acquainted with our ways over here, and he hears you and goes out and repeats your statements to others. How many of us simply fall into the habit of complaining and criticising? It is poor advertising. Don't do it.

"You will be interested in knowing some of the general results that have been accomplished by this organization of yours. You in New York, the financial

center of the United States, are possibly more interested—although every man in the United States is vitally interested—in the work of the Agricultural Department than the people of any other section of the country. The question of the live stock that is raised, the volume of the grains that are produced, the sum total of the products from those farms is the factor that measures your business. There is no doubt about that. You know it full well. So you will be interested in some of the general results received for the money that has been spent.

"Since 1880 there has been a gradual increase of 25 per cent in the yield per acre of wheat—25 per cent for the whole country. Notwithstanding the fact that we have placed under cultivation a great deal of new land, that we have taken deserts and made farms out of them, that we have removed the timber and established farms on the cut-over areas, there has been a gradual increase of 25 per cent in the average yield of wheat per acre. Corn, for example, increased 10 per cent; oats 24 per cent; potatoes 33 per cent; hay 20 per cent; and cotton 3½ per cent. The acre yields for other field crops have increased 16 per cent. Better methods, the introduction of improved machinery, the development and planting of larger producing varieties, the elimination of plant diseases and insect pests, are some of the factors giving this happy result. And yet some ask whether the farmer is lying down; whether he is doing his part!

How Production Has Gained

"Production also has kept up with the increase in population. Fifty years ago, or during the period from 1856 to 1874, the average production per capita of the six principal cereals was 38 bushels. From 1915 to 1919, it was 52 bushels, an increase of 14 bushels. The production of corn increased from 23 to 27 bushels per capita. Wheat increased from 6⅕ to 8 bushels, oats from 6.7 to 13.9 bushels, cotton from 36.5 to 52.7 pounds per person, and milk from 84 gallons in 1889 to 96 gallons in 1919.

"Meats have shown a reduction in production per capita, but we have a larger variety of foods to-day than we ever had before—more fruits, more vegetables, more cereals—our diet is more varied. In 1900 there were produced 248 pounds of meat per capita; in 1914, 182 pounds, a decrease of 66; and in 1918, 222 pounds, an increase over 1914 of 40 pounds per person.

"Notwithstanding the reduction in the per capita production of meats, we are still exporting large quantities.

"The farm workers have increased in numbers from 5,900,000 in 1870 to approximately 14,000,000 in 1919, and the production of each farm worker in terms of leading cereals also has increased. In the period from 1856 to 1874 each farm worker produced an average of 266 bushels annually. In the period from 1906 to 1914 the average was 406 bushels, while in the five years, 1915 to 1919, the average production per farm worker per year was 418 bushels.

Farmer Doing His Part

"These figures are interesting, and particularly so in connection with the discussion of the cause of the high cost of living. The cost of living problem is a mutual one for all of us: It is the farmers' problem, it is the laborers' problem, and it is the business man's problem, and we must all work together mutually to meet the situation. If there are more men on the farms farming more acres, each acre producing more per acre, and each man producing more per man, giving each and every one of us to-day more of the six leading cereals per capita than we have had before, it seems to me the farmer is doing his part pretty well.

"During the war, in spite of the labor shortage, the farmers increased their planted acreage by 33,000,000 acres, and their yield by 635,000,000 bushels above the average for the prewar period. In response to the department's request to increase the acreage of winter wheat in the fall of 1918 to 47,200,000 acres, they actually planted 49,261,000; and the following spring they planted over 22,500,000 acres of spring wheat, which was up to the record. Certainly, we must appreciate that, under the conditions then existing, with the farmers producing food as they produced it, they saved the situation.

"You know that when the war broke out we owed Europe some $500,000,000; and I have no doubt that you were worrying. In fact, it is common knowledge that we were wondering and asking how we were going to pay when we were called upon to do so. Yet, in a single year the exports of farm products from America increased by $500,000,000, and then the balance was on the other side of the ledger.

Some Specific Things

"I gave you, a while ago, figures showing something of the general results that have been accomplished in agriculture by studying plant life, finding better varieties, protecting against diseases and insects, pointing out better methods, and the like. But some of the specific things might be interesting. We can get hold of them better. There were, in Arizona and New Mexico and other parts of the Southwest tens of thousands of acres which grew nothing to speak of. The Agricultural Department brought from Egypt a cotton called Egyptian cotton, and to-day there is no Egyptian who would recognize it. By careful breeding and careful selection you have to-day a long staple cotton, one of the best cottons in the world, and one which adds to the length of life of every garment made from it.

"What are the results in dollars and cents? Twenty million dollars' worth of cotton last year, because of a department activity, from a source that would not have existed except for that activity. Twenty million dollars a year right along from one line, and we are spending for the development of our entire agriculture only 10 or 12 million dollars a year!

Story of Durum Wheat

"Take durum wheat. The same situation existed. In the great Northwest there were thousands of acres of semi-arid land that would not grow crops. So the department went out and found a hardy drouth-enduring wheat, bred it up, develop it. What does it mean to the United States to have produced each year from 20 to 45 million bushels of wheat on ground where there would not have been any wheat? You can not tell me, you business men, that you are not interested in that. It cost you perhaps a quarter of a million dollars once. A quarter of a million dollars was all that was spent to produce a crop that year after year provides $50,000,000 or more, and, directly or indirectly, every individual and every business is benefited. There isn't one of you here who does not feel the influence, directly or indirectly, of that extra production. I know you agree with that. Your railroads, your shipping, your banks, and your retail stores, all are affected by it.

"Take the grain and forage sorghums. The Southwest could not grow Indian corn satisfactorily, so these men in the department searched the world for other crops that could be grown there. Last year there were 125,000,000 bushels of Kafir corn and other grain sorghums produced where before there was none; and a few thousand dollars in the hands of earnest and capable men was responsible for much of this.

Saving the Orange Culls

"Out in California the department found cull oranges and cull lemons selling at $5 a ton. It established a citrus fruit laboratory to discover uses for the culls. As a result the by-products of lemons last year were 1,500,000 pounds of citric acid, 500,000 pounds of citrate of lime, and 50,000 pounds of lemon oil. Twenty concerns are now engaged in the manufacture of products from cull oranges. The total products last year were 6,000,000 pounds of marmalades,

jellies, and so forth. Isn't that cutting waste?

"In northern California there were thousands of acres of land growing nothing. The land was worth $5 to $10 per acre. For less than $200,000 the department introduced and developed a rice, by foreign exploration, research, and careful breeding, and to-day a rice crop valued at $21,000,000 is produced in that territory. Did that affect your breakfast this morning? Does it come in contact with you? You might not have a navel orange to-day if it were not for the Department of Agriculture. The oldest tree—among the descendants of the Washington navel orange which the department introduced from Brazil—is still growing in the greenhouse on the grounds in Washington. Last year 13,000,000 boxes of California grown navel oranges were distributed among the people of this country.

American Figs and Dates

"Another thing the department has introduced is the Smyrna fig, but at first the trees would not bear fruit. By careful observation it was found that certain small wasps were the fertilizing agents. The wasps were brought over and still the fig trees were infertile, would not produce. By careful observation and study it was discovered that, beside the Smyrna fig, the wasp required the Capri fig to breed in. The Capri was brought. With the wasp and the Capri fig and the Smyrna fig together, it is all settled and soon America will be producing her own high quality figs.

"There is an interesting story about dates. There is a date industry in America, and it is producing a better date than you can find in any other place in the world. Some of the best dates have but few offshoots a year through which the trees can be multiplied. The inferior dates have 20 or 30 offshoots per year. To prevent the planting of the inferior trees the department sends to Egypt for offshoots of the choice varieties. Four thousand dollars spent now means tens of thousands saved in the future.

"Take the cotton boll weevil. You know the fight there has been on this pest for years and years. We have been spending money, and you men have paid some of it in taxes, to fight the insect. It has been discouraging work, but the experts of the department did not give up, and now the tide has turned. They poison the weevil's drinking water. His drink is the dew on the cotton leaves in early morning. So they poison the dew and that is the end of the boll weevil.

"Last year this method was tested out on an abandoned farm where the farmer had said 'I give it up,' and had moved. The department divided the field into three strips; the unpoisoned strip on one side produced 48 pounds of cotton, the other strip on the other side produced 60 pounds of cotton; the strip down the middle, where the drinking water was poisoned, produced 480 pounds of cotton. what does this mean to America? What does it mean to you that this department should be equipped to do these things?

Fight on Hog Cholera

"In 1903 three doctors, scientists in the Department of Agriculture, Drs. Dorset, McBride, and Niles, of the Bureau of Animal Husbandry, discovered the cause of hog cholera. They also worked out an effective method of preventing the disease. Since 1913 the losses from it have been reduced over 60 per cent. The death rate per 1,000, which was as high as 144 in 1897 and 118 in 1914, has been reduced to 41 in 1919. What does it mean to reduce the losses from hog cholera from 144 to 41 per 1,000? Just a little matter of $41,000,000. What does it mean to you business men? What does it mean to the homes out there in the country? What does it mean to the boys and girls who are enabled to go into school and become better citizens? What does it mean so far as life in America is concerned?

The discovery that the mosquito was responsible for yellow fever was based upon the work previously done by scientists of the Bureau of Animal Industry, which proved that Texas fever could be carried only by the cattle tick. If it were not for that discovery you might not have the Panama Canal to-day, because you first had to get rid of yellow fever.

"I say those men made a valuable contribution to the Nation, and that it is not only poor advertising when we talk about their being loafers or inefficient, but it is ungrateful and unappreciative.

In Dollars and Cents

"In dollars and cents, the Bureau of Animal Husbandry estimates that, in the year May 1, 1918, to May 1, 1919, hog cholera destroyed 2,800,000 hogs in the United States. It destroyed 2,800,000 hogs and their value, as of January 1, 1918, would have equaled $62,000,000. Sixty-two million dollars lost. To reduce that 10 per cent, or $6,000,000, would pay two-thirds of the 10 or 12 million dollar appropriation for agriculture. That is just hog cholera. You must remember the wheat; the cattle tick; the cotton; and we can go on and justify the 10 or 12 millions many times.

"I want to refer to the wheat rust, which affects every business and every family in America. Millions and millions of dollars are lost because of the black rust in wheat, which means thousands and tens of thousands to New York. The common barberry is the host plant of the fungus which causes wheat rust; and the department is cooperating with the States in locating and destroying the barberry bushes, thus greatly reducing the spread or prevalence of the disease—a plant disease that has cost the United States a loss of 200,000,000 bushels of wheat in a single year. What does it mean to you men? What can you afford to pay for it? I suppose it is costing you a penny a year each.

"There are some who complain about the work of the Agricultural Department. They are the people who go up against the pure-food regulations, for example, the people who want to put something in your food that does not belong there. They think they are all right, but your doctor does not agree with them. These men complain and they go around talking about it and it gets into the papers, while many of the men who are helped in the production of pork and wheat and all these different things either do not know or forget that they are helped.

To Advertise the Department

"I am going to resolve myself into an advertising manager of the Department of Agriculture, because if I can increase by 5 per cent, 10 per cent, 20 per cent, 30 per cent, 50, or any other percentage, the number of people—farmers, business men, and others—who are taking advantage of its services, then I feel that I have accomplished part of what I would like to do in the interest of the whole country. In that I want your help; I want your cooperation; I want you to know what this department is doing.

"I want your help even more directly than that. Do you know that if the daily papers in New York were to say to me today, 'Meredith, we would like to run some copy on the garden bulletins and on the home-economics bulletins that will teach the young housewives how to save. We will give you a hundred thousand inquiries,' I would have to say, 'No, I am sorry, but do not do it, because we haven't the bulletins and we can not print them; we do not have the money.' Four-fifths of all the farmers' bulletins that are printed must go to Congress, for the Congressmen to divide, leaving only one-fifth for the department to distribute.

"There is no politics in the Department of Agriculture. Out of 21,000 positions there are only four that are not under the civil service—the Secretary, the two Assistant Secretaries, and the Chief of the Weather Bureau. We have only one Assistant Secretary now. The vacancy has been offered to six men, and I pledge you that, outside of one of them, I do not know their politics. I hope that one of the two places will be filled by a Democrat and the other by a Republican because, as a business proposition, as your representative or superin-

tendent, or whatever term you may wish to apply, it is vitally important to you that on the 4th of next March there should be some one in the Secretary's office who, no matter what the outcome of the election is, may be allowed to stay there.

"It seems to me that it is of great importance that there should be no politics in the Department of Agriculture.

About the County Agents

"Now, I shall briefly refer to the matter of the county agents. Men go from farm to farm saying to the farmer: 'Test your seed; get rid of the cattle tick; fight smut in oats; do this and do that.' A Member of Congress says it is money thrown away. He says: 'The crime of the thing is that whenever you appropriate a dollar you must make the States put up another dollar. They are writing and protesting about it.'

"It is an odd thing that, when the county agent movement was begun the Government had to pay practically all the expense, then $2 to $1, then 50-50, while to-day the States, counties, and farmers are putting up about $9,000,000 to the Government's $6,000,000 in order to support the county agents; and yet the Congressman to whom I have referred says it is ridiculous and ought to be cut out and is a waste, that these men wear patent-leather shoes and high collars and do not get onto the farms. The farmers themselves say they get more direct benefit from the county agent working under the supervision of the Department of Agriculture and in cooperation with the State agricultural colleges of America than they do from any other source in the country. Thirty-eight per cent of them give farm bureaus and the county agent first place, and yet this member of Congress wants to cut down such work, because he says it is not economy.

"Men in Congress talk about economy in providing funds for the Department of Agriculture. They think they are carrying out your instructions and your wishes. I have not come here to discuss appropriations, but I have memoranda here regarding some of the lines of work which are to be curtailed. I have not the time to go into them in detail. I shall simply say that vitally important activities are to be cut down if the action that has been taken on our appropriation bill prevails. Even now I am receiving inquiries for men to go out and help eradicate tuberculosis in cattle, but the answer invariably is 'We can not send a man to help you get rid of tuberculosis in your cattle because we haven't the money.'

Will Service Be Kept?

"I have told you some of the things the department has done. Are you going to keep this wonderful product—service—from the people, this wonderful product that you are manufacturing? It is not wholly the problem of the Department of Agriculture, because we are only your agents. You are manufacturing this product, and that product is service. I would like to double the number of customers. I want to increase the sales of this organization. In other words, I want to bring home to every man and woman in America this wonderful service.

"Isn't it a little disappointing and a little discouraging, however, to the men who are giving their efforts and their time to this work not to be equipped? While many of them are grossly underpaid, they do not ask the salaries that you pay in your establishments. But they do ask that they be properly equipped, and that is what I ask for them. That is the attitude I want you to have toward them. If they are able to accomplish such practical results in eradicating the boll weevil, getting rid of the wheat rust, eliminating hog cholera, stamping out tuberculosis, bringing in new grains, such as durum wheat, growing rice where it did not grow before, establishing long staple cotton in a new territory—all those things and more—and devote their time at salaries considerably less than those paid elsewhere, certainly it is up to you and me and the rest of our good American citizens to see that they are properly equipped.

Some Men Who Have Left

"I wish also to call attention to some of the men who have left the department during the past year, in order that you may have proper regard for and due respect and appreciation of their ability. I have a list here of a few of them. The first on the list is an expert in the Office of Farm Management. He was drawing $3,500 a year and went to a new position at $6,000 a year. The next is another expert in the same office getting $2,500; he went to a large farm-implement concern at $4,500 and a bonus. Here is a crop estimator at $2,200 a year who went to a $4,500 position. In the Bureau of Chemistry one man drawing $3,000 went to a trade association at $6,000. Another receiving $1,500 left to be the eastern representative of a Louisiana concern at $10,000. Fifteen hundred dollars to $10,000 is a big jump, but he is worth it. Another expert who was getting $3,700 went with a commercial concern at $10,000. In the Forest Service a man receiving $1,600 left to take charge of a stock farm at $5,000. A box inspector at $2,000 went to a Chicago lumber company at $4,800. A chief of one of the bureaus receiving $4,500 resigned to accept a position with a commercial concern at $20,000. These are only a few. I could go on citing such cases for an hour or more, but I want you to bear this in mind: Those who are still there are of the same type and worth the same money in commercial enterprises. All I ask is that they be equipped to do their work.

Doing a Wonderful Service

"My attitude toward these men is that they are rendering a wonderful service. It is up to you and me and everybody to get behind them. Don't give Congress, don't give anybody anywhere the idea that they are slackers and loafers, or wasters; but give them credit for what they are—public benefactors, serving you and me and every industry in America, because the Agricultural Department, as I have said, touches you in more places every day, as I verily believe, than any other department of the Government, not only as it contributes to the stability of your business in looking after agriculture, the very foundation of all business, but as it comes in contact with your daily life.

"Again, I want to urge that you men should appreciate as much if not more than anyone else, it seems to me, what the possibilities of agriculture are; what a wonderful service has been rendered in bringing into market the millions of bushels of wheat which probably would not have been produced, the millions that would have gone to waste except for the watchfulness of these men and their study of better methods of breeding and producing grains.

"I do not know when to stop when I get started on this subject. I have only tried to outline in a brief way some of the things that have been done. I ask your cooperation. I wish I could know whether this idea of my being sales manager, of bringing home to the people this service, of making it of value to more people, of getting more people in touch with it, of having business men realize what it means to them, is the attitude that you would like to have me take, and whether I can be most effective in advertising this department, letting you and other business men and all the people of America know what it is doing, so that they avail themselves of the service of the department to a greater extent and that the work of the department may be still further broadened and extended. In this I want your help. I ask as you go along every day that you remember that the farmer is a sturdy fellow, a good American citizen; that agriculture is the foundation of our prosperity, our very country, and that in having a helpful, intelligent interest in agriculture and a spirit of cooperation in its behalf, you are doing well for yourselves and our Nation as a whole."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Seek Enemies of Beetle.

The Japanese beetle is going to have its old enemies on its trail in this country. The United States Department of Agriculture has sent a man to Japan to find those enemies and send them across the ocean. They will then be established in the sections of New Jersey where the Japanese beetle has gained a foothold, and they are expected to aid greatly in the control of the pest.

The agent employed for the work in Japan is familiar with Japanese conditions and is a specialist in this character of work. It is expected that the task will require his sojourn in Japan for two or three years. While something is known of parasites of the Japanese beetle a great deal is still to be learned, much of which can be learned only under field conditions where the beetle lives with all the enemies that prey upon it. The beetle reached this country with importations of greenhouse plants and thus far apparently has been comparatively free from molestation by natural enemies.

More Good Horses Needed.

The thing most needed in the production of work horses for American farms is greater care in the selection of the stallion and the brood mare, say animal husbandry experts of the United States Department of Agriculture who have been studying the present situation with respect to horses. Not only was there a net decrease of approximately 373,000 in the number of horses on farms on January 1, compared with a year ago, but the experts are of the opinion that there has been an even more marked decrease in the number of mares bred during 1919. The extent of this decrease can not be accurately determined until the colt crop of 1920 is estimated. However, if the decline in breeding is as great as conditions now indicate, the country will be confronted with a seriously depleted supply of good horses within the next few years.

Many farmers are using up their work stock without making any provision for the future. Such a policy is short-sighted and will have serious results, according to Department of Agriculture representatives. The present need is to increase the percentage of efficient horses by careful selection of parents. One of the principal factors from which the market is suffering is the breeding of too many low-grade work animals. There is a strong demand for high-class horses, at good prices, the department says.

Many Farmers Take Up Accounting.

One-day farm accounting courses are now being given in 15 States through the cooperation of the United States Department of Agriculture and the State agricultural colleges in farm management extension work. The primary object of these courses is to interest the farmer in farm bookkeeping as an essential to efficient farm management. While the assistance which the courses give in calculating a farmer's income tax is of great value, it is necessarily secondary.

This is the first year in which this method of introducing farm accounting has been undertaken on such a large scale. The schools are carried on in cooperation with the county agents. The one-day sessions are occupied with calculations made by the farmers themselves under the supervision of the instructor, and discussions of such topics as the relative value of various crops, the size of crop yields, the quality and quantity of live stock for a farm of given size, the size of the farm business as a whole, and the farm layout, and the use of labor—all factors vitally affecting farm efficiency.

Will Speed Up TB Work.

Recognition of the intradermic method of applying the first test preparatory to accrediting a herd as free from tuberculosis, has just been announced by the Bureau of Animal Industry, United States Department of Agriculture. The more general use of the intradermic test is expected to "speed up" the Federal and State cooperative compaign against TB. In the subcutaneous method, heretofore generally used, the tuberculin is inserted beneath the skin and it is necessary to take three preliminary temperature records of the animal and at least seven soon after the test. In the intradermic method insertion is made between the layers of the skin, and, while this method requires a greater degree of skill in the operator, only one later inspection of the animal may be sufficient to indicate the presence or absence of the disease.

The Federal recognition of the intradermic method provides, however, that herds undergoing it successfully must pass a subcutaneous test within a year before they can be accredited as free from tuberculosis. The intradermic test has been recognized also by about three-fourths of the 45 States now cooperating with the Federal Government in the TB work.

Texas recently became the forty-fifth State engaged in the cooperative campaign. The three States not yet engaged in it are Arizona, Colorado, and California. Arizona and Colorado are expected to receive authority to enter the work at the next sessions of their legislatures.

Will Transfer Tea Inspection.

The Federal tea inspection service will be transferred from the Treasury Department to the Department of Agriculture at the end of this fiscal year, if the authority for the transfer carried in the pending agricultural appropriation bill becomes law. The service is maintained, not under the Food and Drugs Act, but under a special Tea Inspection Act which, in some particulars, confers more authority than does the Food and Drugs Act. Only adulteration and misbranding are included under the Food and Drugs Act, while quality is included under the Tea Inspection Act.

In order to make tea of good commercial quality, the leaves used must be only the young leaves that grow near the ends of the twigs. If leaves are taken from farther down the plant the quality is lowered, and while the tea's purity is such that it could not be excluded under the Food and Drugs Act, the quality is so affected that it can be excluded under the Tea Inspection Act. The two lines of work, however, are similar and it is believed that better results will be obtained by placing the enforcement of the Tea Inspection Act under the Bureau of Chemistry of the Department of Agriculture, which all along has been charged with the enforcement of the Food and Drugs Act. The plan is to take over the organization practically intact from the Treasury Department. Tea inspection offices are maintained at the ports of New York, Boston, Chicago, St. Paul, Tacoma, San Francisco, and Honolulu.

Codling Moth Study Extended.

A branch laboratory for investigation of the codling moth will be established

by the United States Department of Agriculture in the apple-growing region of northern Georgia, probably near Cornelia. A representative of the Bureau of Entomology is already on the ground and, though the exact location has not been determined, the laboratory will be ready for work this season. This section was selected as a typical southern locality of commercial apple culture and the data gathered there will be particularly valuable to supplement those obtained in other parts of the country, the object being to show the life history of the codling moth over the United States as a whole.

"No Compromise" With Scrubs.

Whether bulls, boars, rams, or roosters—if they are in the scrub class—they must go! This is the declaration of West Virginia which, having joined the "Better sires—Better stock" campaign, is going at live-stock improvement with a will. Already hundreds of farmers have pledged themselves to use only purebred sires. Feeding demonstrations are to be numerous during the coming months and whole counties are planning to put on campaigns, the object of which is to secure more purebred stock. It is expected that within the next few months several hundred head of purebred sires, and also dams, will be brought into the State as part of the general program to raise the live-stock standard. Several counties undoubtedly will be able to show a list of purebred sires within a short time.

Danish Potatoes Rejected.

About 2,000 sacks of potatoes from Denmark have been refused entry at New York after rejection by the Federal Horticultural Board of the Department of Agriculture. Nearly 7 per cent of the rejected stock was infected with scab and rot. This cargo, which arrived March 4, included some potatoes of fairly good grade which sold wholesale at $4.55 per 100 pounds, or considerably below best native stock, and most of the imported potatoes not rejected sold still lower. The portion of the cargo which was refused entry may be shipped to Cuba.

Southern Ports for Export.

Excellent facilities for handling export shipments of live stock were found at the ports of Charleston, S. C., and Newport News, Va., by a representative of the Bureau of Markets, United States Department of Agriculture, who recently inspected these ports.

"At North Charleston, which is about 7 miles from the central part of the city proper, docks and warehouses were erected by the War Department during the war. These were used as an Army supply base until recently, when they were transferred to the Shipping Board," his report said.

"The warehouses and dock facilities at Charleston are of the most up-to-date type and all are fireproof. The stockyards and barns are also new and in good condition but are not fireproof. They are located about 2 miles from the dock and therefore it would be necessary under usual conditions to drive or lead animals from the barns to the dock. If there were no delays, however, the arrangements are such that the animals could be loaded directly from the car to the boat. Both the Seaboard Air Line and the Southern Railway have direct connections with the docks. The chief drawbacks at Charleston are the few boats going there and the fact that there is no one but Army officers to handle live stock shipments."

While the facilities at Newport News are not new or up to date, they are conveniently located, according to the bureau's representative.

The sheds where cattle are held are only a few hundred feet from the piers. The tracks of the Chesapeake & Ohio Railway are so arranged that cattle can be unloaded from the car to the barns or, in case the boat is ready, from the car to the boat. The man who owns and operates the yards is prepared to sell feed in large quantities for export shipments and, if desired, he handles the live stock and charges a fixed rate per day per animal for care, feed, and loading on the boat. He has had considerable experience in handling live stock, having handled 560,000 horses for the English Government during the war, 1,200 cattle for the French, and 7,000 cattle for the Belgians since the armistice was signed.

Farm Cow a National Asset.

The farm cow that gives milk for human food stands first, with a total value of $2,022,000,000, as compared with other classes of farm animals for January 1, 1920, by the Bureau of Crop Estimates of the United States Department of Agriculture. Not even the total value of all other cattle is equal to the value of the dairy cow.

The average price per head of milk cows in this country has increased from $58.25, since January 1, 1915, to $91.95, the average for 1919, or a gain of 58 per cent in five years, according to the bureau.

Meat Exports on Increase.

The exports of domestic meats and meat products from this country totaled 3,333,000,000 pounds for the year 1919, a quantity, without regard to kinds of meat, as great as prewar annual consumption of meat in France; three-fifths of that of the United Kingdom; one-half as much as that of former Russia, not including Poland; twice as much as that of Italy, and 45 per cent of that of former Germany. For the year ending June 30, 1917, the total exports in pounds of meat products was 1,950,000,000. In the year 1918 the total rose to 2,216,000,000 pounds. In 1919 exports amounted to the largest in the history of the industry, according to the Bureau of Crop Estimates of the United States Department of Agriculture.

Wool Prices on Decline.

Since November, 1918, the prices of wool have declined in comparison with the same month of the preceding year. The highest average price reached was 60 cents per pound in March and April, 1918, since which time the prices fell to as low a figure as 47.9 cents in April, 1919. In January, 1918, the average price was 58.1 cents; January, 1919, 55.2 cents; and in January, 1920, 53.3 cents. The producers' price of 16.7 cents per pound in 1913 advanced to 58 cents in 1918, and fell to 51 cents in 1919. These figures are in accordance with reports received by the Bureau of Crop Estimates of the United States Department of Agriculture.

The Horse and the Motor.

Even though it may be true that the motor-driven vehicle has begun to put the farm horse "on the run," there is no evidence that he has developed much speed, and his total value still compares favorably with other classes of farm animals. On January 1, 1920, the Bureau of Crop Estimates of the United States Department of Agriculture estimated the total value of horses on farms in this country at $1,993,000,000, or just a little below the value of milk cows, which was $2,022,000,000.

SEED RECLAIMED FOR FARMERS

The county agent in Woodford County, Ill., has devoted much time during the past year to the organization and development of the Woodford County Agricultural Association. This association was formed with a paid-up capital of between $5,000 and $6,000. The stock is held by about 100 members of the Woodford County Farm Bureau. A suitable building was rented at the county seat and seed cleaning machinery was installed, with the result that 785 bushels of seeds, including clover, sweet clover, alfalfa, soy beans, and timothy, and 2,500 pounds of rape seed have been purchased and are being reclaimed.

Ginger Ale Containing Capsicum Not Shown On Label Will Be Seized by Officials

Federal inspectors have been instructed to watch shipments of ginger ale coming within the jurisdiction of the Federal Food and Drugs Act to see that the bottles are labeled in accordance with the provisions of the law as outlined in Food Inspection Decision 177, according to a statement of the officials of the Bureau of Chemistry, United States Department of Agriculture, who are charged with the enforcement of the law. That decision provides that if capsicum which is the extract of red pepper is present in ginger ale it must be declared upon the label. All interstate shipments of ginger ale found on or after March 16 which are not properly labeled in this particular will be seized, say the officials, and shipments from foreign countries will be denied entry into the United States unless correctly labeled. The statement in full follows:

In the enforcement of the Federal Food and Drugs Act, the Department of Agriculture has always advised the trade as fully as possible by food-inspection decisions, Service and Regulatory Announcements, press notices, etc., when an interpretation of the law involved a change of labels, formulas, or of standards for products. The trade is given time for adjustment where such a short delay is not seriously detrimental to the public interest.

Food Inspection Decision 177 entitled, "Soda Water Flavors and Soda, Soda Water," in conformity with this policy, was issued by the United States Department of Agriculture August 20, 1918. It was published again in Circular 136 entitled, "Standards of Purity for Food Products."

This states, in effect, that the presence of capsicum, the extract of red pepper, in ginger ale must be declared on the label. It appears from an investigation of numerous ginger ales on the market that while this regulation is being generally complied with, yet there are some bottlers of ginger ale whose products come within the jurisdiction of the Federal Food and Drugs Act of 1906, who apparently are not familiar with the provisions of this regulation. Therefore, bottlers who are not complying with Food Inspection Decision 177 are warned that shipments made on or after March 16, 1920, of ginger ale which is not properly labeled will be actively proceeded against under section 10 of the Federal Food and Drugs Act, if interstate shipment is made, or under section 11 in the case of foreign goods offered for entry into this country.

COL. GRAVES TO RETIRE AS CHIEF OF FOREST SERVICE

(*Continued from page 3.*)

and demonstrated capacity as an executive cause him to be regarded as undoubtedly the best man in the country for the position of chief forester.

"I consider," said Secretary Meredith in announcing his selection, "that the department is fortunate in having available a man so well qualified to fill an exceptionally difficult and responsible position, and I am convinced that the public interests in forestry will be in good hands with Col. Greeley at the head of our Forest Service."

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, EDWIN T. MEREDITH.
Executive and administrative head of the department.

Assistant Secretary, JAMES R. RIGGS.
Assists in administrative duties of the department.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, H. C. TAYLOR, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, THOS. H. MACDONALD, *Chief.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, GEORGE LIVINGSTON, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Livingston, as chief of the bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licenses, operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, EDWY B. REID, *Chief.*
Supervises the editing, printing, and distribution of the publications and press material of the department, and directs the illustrations, exhibits, motion picture, and related publication and information work.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

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URGE UNITED STATES TO JOIN WORLD'S ROADS CONGRESS

Secretary Meredith to Recommend Membership Highway Officials Ask

Enlarged Advisory Committee to Seek Classification of Entire Country's Thoroughfares—May Meet Here Next Year

That the United States should accept the invitation of foreign countries to join the Permanent International Association of Road Congresses is the recommendation of the executive committee of the American Association of State Highway Officials to the Secretary of Agriculture. The committee which recently concluded a two-day conference in Washington considered, at the suggestion of Secretary Meredith, the invitation to the United States which had been received through the State Department from the American consul general at Paris. Secretary Meredith concurred in the action of the highway officials and told them he would recommend to the State Department that Congress be asked to authorize acceptance. The highway officials also recommended that the International Association be invited to the United States for its next meeting.

Only Civilized Nation Not Member

In advising the secretary of the action of the State highway officials, Thomas H. MacDonald, Chief of the Bureau of Public Roads, who is also a member of the executive committee, said that the United States is the only civilized nation not now a member of the International Association. He saw many advantages in the United States becoming a member and he believed the other nations in the association would welcome an invitation to meet in this country next year. The Roads Congress, he said, constituted an international tribunal for bringing together the best experience and results in highway construction and administration. Although meetings have been held each year, none has been called since the European war began. Before the war the congress had met in Brussels, Paris, and London.

Secretary Meredith notified the highway officials that he would enlarge the advisory committee of State highway officials, which consults with the department on Federal policies in road building. This committee, consisting of six members, will now include the entire executive committee of the American Association of State Highway Officials, increasing its membership to 12. The Secretary said this step was taken so that the committee would more completely represent all parts of the United States. The enlarged membership will enable the advisory committee to work out a classification of roads for the entire country, thereby providing a basis for a more orderly national program of road building.

> THE more we work
> the more there is;
> the more there is
> the more to divide.
> Only as all of us
> do our part will we
> contribute to this result
> EDWIN T. MEREDITH,
> *Secretary of Agriculture*

The executive committee inspected a signal device designed to prevent grade-crossing disasters and accidents on dangerous curves. It met with the Director of Sales of the War Department with reference to obtaining equipment, which is seriously needed in road building and which the States have been unable to secure.

The officials who attended the meeting were: Paul D. Sargent, chief engineer, State Highway Commission, Augusta, Me.; George P. Coleman, chairman executive committee, State highway commissioner, Richmond, Va.; W. G. Thompson, State highway engineer, Trenton, N. J.; George E. Johnson, State highway engineer, Lincoln, Nebr.; W. D. Uhler, State highway engineer, Harrisburg, Pa.; S. E. Bradt, superintendent of highways, Springfield, Ill.; Thomas H. MacDonald, Chief Bureau of Public Roads, Washington, D. C.

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NEW EUROPEAN CORN BORER QUARANTINE IN FOUR STATES

No Restrictions on Shipments Outside of Infested Areas

Massachusetts, New Hampshire, New York, and Pennsylvania Affected—Heavy Penalty Provided By New Act

A new quarantine to prevent interstate shipment of carriers of the corn borer has been promulgated by the Secretary of Agriculture, effective March 29, against the States of Massachusetts, New Hampshire, New York, and Pennsylvania, but it applies only to such portions of those States as are now or may later become actually infested. No restrictions are placed on shipments from points in the quarantined States outside of the infested areas, though authority is reserved to extend at any time the areas officially designated as infested.

The articles specifically covered in the quarantine are corn and broom corn, including all parts of the stalk; celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw, as such or when used as packing; cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, and hollyhock, and cut flowers or entire plants of gladiolus and dahlia, except the bulbs without stems. The restrictions do not apply to shelled corn and clean seed of broom corn, nor to other articles after they have been manufactured or processed in such way as to eliminate risk of carrying the corn borer.

Certificates of Inspection Required

All of the articles covered may be moved interstate to points outside of the infested area only after they have been inspected by the United States Department of Agriculture and certified to be free from the corn borer. Every car or other container in which these products are moved must be accompanied by such a certificate, which will be issued only for products actually inspected. The only exception on this point is that individual

premises or districts within an infested area that are themselves free from corn borer and have been maintained so free or weeds as to prevent the possibility of corn borer occurrence in that way may secure from the inspector of the department a permit, which will be valid until revoked and copies of which may be accepted by carriers in lieu of inspection certificates. It is required that carriers thoroughly clean all cars, boats, or other vehicles within the infested areas at the point of unloading or destination, so that no litter or refuse or plants that may carry the corn borer shall be moved interstate.

Plants and plant products originating outside of the infested areas may be shipped from points within the infested areas only under permit from the Secretary of Agriculture.

A heavy penalty is provided by the plant quarantine act. Any person who violates any provision under this act or who counterfeits, forges, alters, defaces, or destroys any certificate provided for under the quarantine may be fined up to $500 and imprisoned for one year.

The known infested areas include townships in the following counties: Massachusetts—Barnstable, Essex, Middlesex, Norfolk, Plymouth, and Suffolk; New Hampshire—Rockingham; New York—Albany, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Cattaraugus, Chautauqua, and Erie; Pennsylvania—Erie.

Why New Quarantine Is Necessary

Following the determination by the Massachusetts authorities of the establishment of this insect in that State, the Federal Government was called upon to assist the State authorities by establishing a Federal quarantine to aid in control and, if possible, exterminative work. Such quarantine was promulgated, effective October 1, 1918, covering the then known infested area in Massachusetts, and prohibiting the movement therefrom interstate of green corn and corn stalks and other parts of the corn capable of carrying the insect.

The discovery of the new important areas in New York in the fall of 1918 and the rather rapid increase of information as to distribution, together with the discovery of many additional food plants, led to further hearings with the purpose of extending the quarantine to cover these later determinations of distribution and food plants. Additional Federal quarantine action has not been taken hitherto for the reason that it was apparent that the territory invaded by this insect was so inadequately determined as to make any quarantine comparatively valueless. As a preliminary measure of control, however, the States of New York and Massachusetts agreed through their representatives to establish State quarantines covering the known invaded districts, so that there should be no interstate movement of infested products from such districts. Such quarantine orders were shortly thereafter issued by the Commissioners of Agriculture of New York and Massachusetts. Both the Massachusetts order and the New York order as subsequently amended cover merely the subject of corn and corn products capable of carrying the insect and have not controlled, therefore, the movement of other products which are also now known to be infested, and possibly carriers.

The corn borer is now known to infest upwards of a hundred different plants and may attack and breed in almost any plant which is of a succulent nature. The farm products enumerated in the quarantine include the important cultivated plants which are likely to be the means of spreading the insect through the agency of commerce.

Present Action Purely Tentative

The promulgation of this Federal quarantine will materially aid in the enforcement of the quarantines issued by the several States concerned with respect to the infested territories, and its proper enforcement will afford the most effective control of further spread by stopping distribution of infested farm or garden products.

It is realized that this quarantine action must be looked upon as purely tentative pending the more complete determination of the probable much wider spread of the insect than is now known.

The present status of information and the economic situation with respect to this insect were given in some detail in the Weekly News Letter of this department for January 14, 1920.

The corn borer is the first important foreign insect pest of corn which has gained access to this country for many years, and this fact, together with the actual damage which it has caused in limited districts in New England, has given it much importance in the minds of farmers throughout the great corn-growing areas of the Middle West. During the last two years the Department of Agriculture has, under special appropriations from Congress for the purpose, been making a thorough study to determine the actual economic importance of this insect, its present distribution, and also has been conducting quarantine and other control measures to prevent the spread of the insect through the agency of infested farm products.

Can Not Exterminate Pest

The experts of this department have fully realized that the extermination of this corn borer in this country is, unfortunately, not possible, its widespread distribution, now known to involve four States, and probably many others, and the fact that it breeds in all common weeds and other succulent plants, absolutely eliminating any possibility of eradication. Any serious effort to eradicate the insect would involve the removal of practically all vegetation over a wide section of the country, an undertaking which would be physically impossible even if Federal or State powers permitted of such attempt.

The work which the Department of Agriculture has under way with this insect is of a practical nature and such as is believed to be possible of reasonable accomplishment. These activities are: First, the determination, as promptly as possible, of the present distribution of the insect and of its economic importance to the different classes of corn and other cultivated plants; second, the demonstration, on a scale sufficiently large to yield significant results, of what can be done in the way of practical field control; and third, and most important of all, cooperation with the several States in quarantine and other measures to prevent spread, including in such work a clean-up as thorough as is practicable of the outlying areas of infestation.

The possibilities of wide distribution of the insect and necessity of determining such distribution as a preliminary to other work are clear. The practical control work which is under way in the demonstration experiments has for its chief object the determination of farm methods and the devising of suitable apparatus for broad scale control work, and should yield results of value in all future control operations against this insect. The quarantine measures and the clean-up of outlying points of infestation are for the purpose of preventing further spread of the insect, pending determination of these fundamental factors of distribution, economic importance, and control possibilities.

The further entry of broom corn, Indian corn, and related plants has been either prohibited or restricted in the quarantine promulgated February 21, 1920, for the purpose of preventing the further entry into the United States of this corn borer, or of other dangerous insects, or of plant diseases, through the agency of stalks or other portions of these plants.

QUARANTINE MAY BE PLACED AGAINST TEXAS AND LOUISIANA

Pink Bollworm Discovered in Latter, Reappears in Former

Extermination of Pest Is Absolutely Contingent Upon Prohibition of Growth of Cotton in Infested Areas

The discovery of the occurrence of the pink bollworm in Louisiana and its reappearance in Texas has led the Secretary of Agriculture to issue a notice of public hearing to consider the advisability of quarantining these States on account of this insect. This hearing is called for 10 o'clock, April 6, at the department, Washington.

The determination early in February of this year of the establishment of the pink bollworm in southwestern Louisiana in the Parishes of Cameron, Calcasieu and Jeff Davis, under circumstances which indicate that this insect has been present there for at least two years, and the distribution of cotton seed and cotton from this district during these years to various points in Louisiana and also in Texas, together with the reappearance of this insect in the old Trinity Bay district in Texas, have added very much to the seriousness of the pink bollworm situation.

Only Infested Areas Affected

Hitherto this insect was known to occur only in certain restricted areas in Texas, and with the aid of Federal funds and State cooperation, both in quarantine measures and in clean-up and general control work, the insect has seemed to be on a fair way to be exterminated, and there has been no real need of a Federal quarantine.

While the notice of hearing is drawn to cover the States of Texas and Louisiana as a whole, it is hoped that it will be possible, through the cooperation of the States concerned and particularly the establishment by these States of quarantines prohibiting the growth of cotton in the areas actually known to be infested, to limit the restrictions imposed under the Federal quarantine to the areas actually determined as infested.

It is recognized that the extermination of this insect in Texas and also now in Louisiana is absolutely contingent on the prohibition of the growth of cotton in infested areas. The growth of cotton under restriction or other methods of control simply means the perhaps slower, but no less certain ultimate spread of this insect. Extermination is possible only when the infestation is just beginning and when the insect is scanty in numbers and limited in distribution. Any postponement or limitations, therefore, of the effort at this time means practically the loss of the opportunity of extermination and an acceptance of the ultimate spread of this pest throughout the South. Success in this effort at extermination necessarily requires absolute cooperation of the States concerned in the measures outlined.

Promptly following the discovery of the infestation by the pink bollworm in the southwestern part of the State of Louisiana, the authorities of that State established a drastic quarantine prohibiting the growth of cotton in the infested parishes, and at a recent convention held at New Orleans, steps were taken to secure a large State fund for the purpose of aiding in control work and, particularly, for the reimbursement of planters in the quarantined districts for net losses due to the prohibition of the growth of cotton.

Must Reimburse Planters

It is hoped that the State of Texas will take measures promptly to continue the cooperation which it has hitherto given and, particularly, to provide for the prohibition of the growth of cotton in the infested areas and for the reimbursement of planters, as in the case of Louisiana. The Secretary of Agriculture has laid the situation before the governor of Texas and requested that appropriate action along these lines be taken immediately so as to insure the effective continuation of the eradication campaign in that State. The governor has advised the secretary that, in cooperation with the State officials, he is working out such a plan, which will be submitted in the course of the next few days.

It may be noted that the quarantine action proposed in this notice of hearing has been urged in a series of resolutions adopted at a conference of the southern State entomologists and quarantine officials held at Vicksburg, Miss., March 3, 1920, and further, that several of these southern States have already issued, or are now considering the establishment of, State quarantines against Texas and Louisiana with respect to this insect.

TOBACCO EXPORTS

The exported fraction of the tobacco crop has been a diminishing one. For 1790 the fraction was 78 per cent; for 1845–1854, 67 per cent; for 1875–1884, 54 per cent, from which the decline was steady to 41 per cent in 1905–1914. The percentage was 43 for 1915, 38 for 1916, 26 for 1917, and 47.5 for 1918, no allowance being made for the carry over. As a fraction of this country's crop, the imports of tobacco never exceeded 5 per cent until 1906, when they were 5.4 per cent, and never exceeded 6 per cent, except in 1915 when they were barely more, 1916 when they were 6.6 per cent, and 1917 when they were 6.1 per cent. The percentages are shown by the records of the Bureau of Crop Estimates, United States Department of Agriculture.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 20, 1920:

Making Woodlands Profitable in the Southern States. Farmers' Bulletin 1071.

Harvesting and Storing Ice on the Farm. Farmers' Bulletin 1078.

Selection and Care of Clothing. Farmers' Bulletin 1089.

A Pink Yeast Causing Spoilage in Oysters. (Professional paper.) Department Bulletin 819.

How Lumber Is Graded. Department Circular 64.

Collecting Flowering Plants and Ferns. Department Circular 76.

Copies of these publication may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention make your request definite by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

POOR STOCK, LESS FARM INCOME

It doesn't pay to grow low-grade or scrub stock of any kind. This statement is made by the United States Department of Agriculture in connection with a series of tests on efficiency in farm management in the South. On 289 dairy farms it was found that 48 farms receiving $50 and less income per cow had labor incomes 45 per cent below the general average. On the other hand, the 28 farms with receipts per cow of more than $120 had labor incomes 75 per cent above the average and were the most profitable of the group. The quality of the live stock kept is one of the 16 points outlined by the department to be tested in determining the efficiency of farm management. Full information concerning the tests is embodied in a new circular of the department.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
Edwy B. Reid, Chief

OFFICE OF INFORMATION
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

MORE ARMY EQUIPMENT FOR PUBLIC-ROAD BUILDING

The signing by the President of a bill directing the Secretary of War to transfer certain surplus Army equipment to the United States Department of Agriculture, as well as allotting certain material to other branches of the Government, makes available for distribution to the States millions of dollars' worth of machinery for use in highway construction.

Since there is now available from all sources—Federal, State, county, etc.—more than $1,000,000,000 for road building, the States are anxious to secure their allotments of these Army supplies because of the great assistance they will be in expediting their road building. This material is in addition to approximately 22,000 Army motor vehicles which already have been allotted to the States through the Federal Department of Agriculture in accord with previous legislation.

As yet no definite estimate can be made as to the number of machines of different kinds which the Secretary of War will designate to be "surplus and not required for military purposes," as provided in the act. Among the scores of items listed in the law are: Road rollers, sprinkling wagons, concrete mixers, derricks, complete pile-driver outfits, clam-shell buckets, caterpillar and drag-line excavators, plows, cranes, dump wagons, hoisting engines, stump pullers, wheelbarrows, blasting machines, corrugated metal culverts, surveying instruments, drafting machines, fabricated bridge materials, gravity and power conveyors, and wagons.

The distribution of this material will be made by the United States Department of Agriculture, the work being in the immediate charge of the Bureau of Public Roads. It will be allotted in the same ratio as funds granted to the States for Federal aid roads.

The bill also empowers the Secretary of War in his discretion to transfer to the United States Department of Agriculture for use by the Forest Service in the work of supervising the National Forests, any telephone supplies no longer required for military purposes.

The Federal Government is to be reimbursed by the States, a sum equal to 20 per cent of the value of the material less all freight charges incurred in delivering the property to them. The title to all vehicles and other equipment remains vested in the State for use in improving highways. No vehicles and equipment, in serviceable condition, can be sold or the title transferred to any one else. A provision inserted in the bill shortly before its final passage provided that any State highway department may arrange for the use of this material by any State agency or municipal corporation at a fair rental, if it is to be used in constructing and maintaining public highways. The rental must not be less than the cost of maintenance and repair of the vehicles and equipment involved.

HIS FATHER'S PARTNER KNOWS GOOD PIGS FROM POOR ONES

The firm of J. Kasper & Son, farmers, is located in Medford, Minn. The junior member of the firm, Valdimore Kasper, is 15 years old. He has been a member of one of the pig clubs organized by the United States Department of Agriculture and the State college for two years and knows a good pig when he sees one. His father, like many wise fathers nowadays, has taken his son into partnership with him. The old idea of a father keeping all authority entirely in his own hands until he dies or is forced by illness to turn it over to some one else is slowly becoming a thing of the past. Farm fathers are awakening to the fact that if they want a boy to be contented and to stay on the farm, they can do it by giving him a share of its responsibilities and profits, as well as a share of the work.

Kasper & Son this winter decided they needed some new blood in their pig yard. An auction sale of purebred gilts offered an opportunity to acquire the stock they wanted. On the day of the sale the senior member handed Valdimore the company's check book and sent him as the firm's purchasing agent to the auction.

When an uncommonly good gilt was brought into the ring the boy ran the bids for it up to $750. Eventually this pig sold for $1,000. Though he was disappointed in not obtaining the gilt he most wanted, the boy stayed in the game and outbid his competitors for three other gilts that looked good to him. At the conclusion of the sale he wrote a check for $900 and signed the firm's name.

"It's a good day's work and all in a day's business," said the young farmer, as he loaded his purchases and started for home. Pig club boys acquire self-reliance and initiative through their work in the clubs.

GROWTH OF TOBACCO PRODUCTION

The first United States census of agriculture, for 1839, found a crop of more than 219,000,000 pounds of tobacco, but in 1849 it was under 200,000,000 pounds. By 1859, it had more than doubled the crop of 1849 and reached 434,000,000 pounds, followed by reduction to 263,000,000 pounds in 1869, in consequence of the Civil War. After that year, production advanced to 868,000,000 pounds in 1899, to 1,056,000,000 pounds in 1909, and 1,439,000,000 pounds in 1918, the largest crop ever raised, as estimated by the Bureau of Crop Estimates, United States Department of Agriculture. The North gained relatively in tobacco production from 1839 to 1879, and rose from 8 to 28 per cent of the total, and thereafter the relative gain was transferred to the South, where it reached 77 per cent of the whole crop in 1914–1918.

CORRECTION IN NAVAL-STORES REPORT

The total stocks of turpentine at all points on February 2, 1920, were 54,174 barrels instead of 36,923 barrels as reported by the Bureau of Chemistry, United States Department of Agriculture, on March 8, 1920. The stock of turpentine at New Orleans was 10,352 barrels. On the basis of the corrected report the turpentine stocks on February 2, 1920, were 50,926 barrels instead of 33,677 barrels at those points which were covered in the report of March 31, 1919. The stocks for March 31, 1919, at the points covered in that report were 131,288 barrels.

In 1915, the United States and its possessions produced nearly 54 per cent of the world's crop of tobacco, and in 1914 and 1913 about an even one-half, as shown by United States Department of Agriculture figures.

MUST TEST SEED THIS YEAR TO PREVENT COTTON LOSSES

Less Than Fifty Per Cent in Some Localities Will Grow

Simple Method of Testing to Show Vitality of Supply Recommended By Department of Agriculture

Warning to the cotton growers of the whole Mississippi Valley, from Alabama to central Texas, that the cotton crop in many localities may prove a complete failure if good tested seed is not used, is given by the United States Department of Agriculture. While many farmers know that much of the seed counted on for this year is of low vitality, there has not been a full realization of the present danger to the cotton crop, say the Federal specialists. Tests in different localities show that much of the seed this year has less than 50 per cent germination, whereas good planting seed should germinate approximately 75 per cent.

Simple Method of Testing

Farmers are advised by the United States Department of Agriculture to ascertain the character of their seed in advance by utilizing a simple test, substantially the same as the so-called "rag doll" seed test, which has been widely recommended by the department for corn seed. By this method the farmer can ascertain in five days the condition of his planting seed.

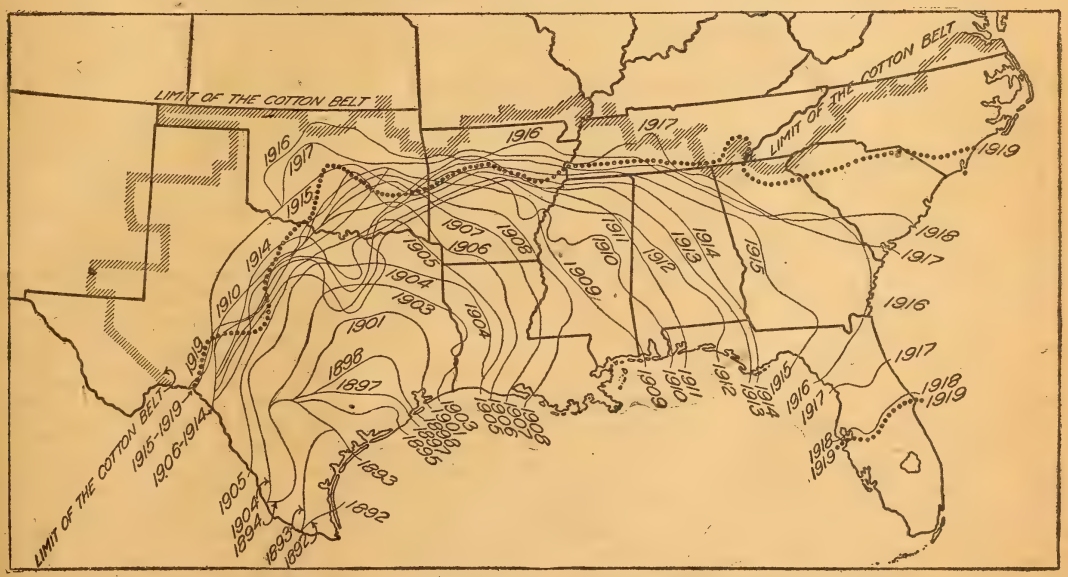
To test cotton seed by this method an ordinary towel or piece of muslin about 18 inches wide and two or three feet long is used. The cloth should be spread out and marked off lengthwise into three sections so that the two sides can be folded over and made to meet at the center, then two lots of 100 seeds each should be counted out and spread out in two different parts of the middle section or portion of the towel. The sides of the towel are then folded over so that the edges meet in the center, covering the seed completely. The cloth should be pressed down firmly over the side and then rolled up, a corn cob or piece of broom handle being used for a core. The doll made in this fashion is tied in the middle with a string and then given a soaking in lukewarm water for several minutes until it is wet through. After draining off the surplus moisture so that it will not drip or become saturated at the bottom, the doll is placed where it can be kept warm and moist. It should be left for five days in a temperature of about 80° during the day and 60° at night. It should not be placed near a window where it is likely to get too cool nor near the fire where it may become too warm. The doll should not be soaked again but kept moist by sprinkling each day.

What the Test Will Show

At the end of five days unroll the doll and count the number of sprouted seeds in each of the two lots. Healthy seeds will send out white radicles or root beginnings less than half an inch long. The number of well-sprouted seeds in each lot represents the percentage of good seed. With this knowledge the farmer can decide for himself whether the seed which he plans to use is fit to plant, how thickly it must be planted to provide a normal stand and how large a stock should be reserved for replanting.

Planting too early is a danger that needs to be borne in mind, particularly in view of the scarcity of good seed stocks. Early planting is always preferable to late planting, because the growth that plants make during moderate weather in the spring months is more apt to be normal. Furthermore early plants begin to fruit near the ground instead of producing large seed stalks which make the crop late. But it is possible to plant too early and so have the seed rot in the ground or if the seed germinates the young plants may be killed by frost or stunted by too much cold weather.

WHERE THE BOLL WEEVIL GAINED LAST YEAR



The cotton boll weevil infested 34,500 more square miles during 1919. The accompanying map shows the progress of the cotton boll weevil during the 28 years since it crossed the Rio Grande from Mexico near Brownsville, Tex. It is now approaching the limit of cotton production—shown by the shaded line on the map—and has reached it at one point. The most important development in 1919 was the very rapid advance northward along the eastern portion of the line in Tennessee, Georgia, South Carolina, and North Carolina. West of the Mississippi River there was comparatively little change from the 1918 line. A slight recession occurred entirely across Arkansas. The pest gained ground in all of the States shown on the map except Arkansas and Texas. It lost 5,300 square miles in the former and 250 square miles in the latter. About 115,000 square miles of cotton territory still remain uninfested. In addition to the area shown on the map, the weevil occurs in the mountains of Arizona on a wild cotton plant but has not yet attacked cultivated cotton in that State. It was recorded in Eddy County, N. Mex., in 1918, but evidently failed to become established under the adverse conditions prevailing in that district and no specimens were found there during 1919.

Secretary of Agriculture Commends Capital's Enlarged Garden Program

Appreciation of the highly important work in the rural communities of the county agricultural agents, home demonstration agents, and club leaders, and a desire that even the large cities might encourage garden work in some such way as is being undertaken by the District of Columbia, were voiced by Secretary Edwin T. Meredith, at a recent meeting of the District's council of agriculture. This council, representing a large number of public-spirited organizations in the Capital, has been formed not only to continue the garden work in the District of Columbia, begun during the war, but also to promote the community's interests with respect to marketing farm produce, milk distribution, and home economics, each of which is closely related to food production.

"We can not afford to lose the benefits which resulted from war gardening," Secretary Meredith said. "We have seen the profit to individuals, communities, and the Nation, which have arisen from this planting, cultivating, and harvesting. Let's conserve this movement, not merely from a selfish motive, but also because it benefits the community as a whole.

County Agents Practical Helpers

"The reason our continued interest in agriculture and problems related to it can be expected to effect results is because we have learned to organize. The county agents and the home demonstration agents are the representatives of working organizations in their respective communities, and they are helping in the most practical ways to bring about the improvements in production and distribution which we so much desire.

"I want to heartily indorse the splendid work of these county agents, of whom there are about 2,400, and of the 1,000 or more home demonstration agents. Any one who is as familiar with their tasks as I am through personal observation and the reading of reports that come to the department, thoroughly appreciates their arduous labor, the large amount of travel which they have to undertake, the repeated absence from their homes, and many other features incident to helping widely scattered farmers on their respective farms. If any one ventures to criticise these workers, it is evidence that he is not informed regarding the service of one of the most valuable groups allied to American agriculture.

More Home Gardens Needed

"What I said during the war I say now, most emphatically: Patriotism does not consist merely in waving the flag and cheering. It consists in performing some needed task, in rendering some service to the Nation of which we are a part. That is why it seems to me this council has undertaken a most important task. We have, for example, special need of intelligent food production at this time. Conditions lead me to believe that there will be a considerably smaller supply of truck-garden vegetables this year, particularly in industrial districts, because of a labor shortage. Consequently, we will need more home-grown food, and this council is pledged to encourage such production. Likewise we need to improve our methods of distribution wherever possible, and here also this council proposes to look after the community's interests. These are but typical of many fields in which organizations such as yours can be of service. So I am very glad to commend this work which is here represented, and I hope that it may find its counterpart, as I am sure it will, in many communities throughout the length and breadth of our land."

RIPE OLIVES IN GLASS CAUSE RECENT FATALITIES

That ripe olives in glass have been the cause of various fatal cases of botulinus poisoning is shown by the investigations of the Bureau of Chemistry, United States Department of Agriculture. The only case in which a tin container appears to have been involved was caused, not by olives as such, but by a relish containing minced ripe olives.

The trouble, the specialist say, is due to defects in the methods of pickling, packing, and processing the olives. The method of pickling usually employed is such as to favor the development of the bacillus botulinus if this organism be present in the olives. In most establishments the product when packed in glass is sterilized at about the temperature of boiling water, and this temperature is too low to insure the destruction in every instance of the bacillus and the toxin which it produces. The trouble, the specialists say, is not inherent in the glass container if sound olives be used and the packages are properly sealed and sterilized. Unfortunately, some of the packers in their anxiety not to break the glass containers do not always process them at a sufficiently high temperature to insure the destruction of any dangerous organism. The poison would develop just the same in tin containers if they were not sufficiently processed, but as there is no danger of breakage in tin, there is usually no hesitation on the part of the packer about applying a sufficient degree of heat.

The bureau has suggested to the industry that all ripe olives in glass wherever located be carefully inspected and that any which show the slightest degree of decomposition be destroyed. It is further suggested that all ripe olives which have not been processed at a sufficiently high temperature be returned to the packers for immediate reprocessing at a temperature sufficiently high to insure complete sterilization. It recommends that similar action be taken in the case of ripe olives packed in tin, since it is known that in some instances an inadequate processing temperature has been used with the tinned article.

The specialists state that relishes containing minced olives of the type used in the preparation of the olive relish which caused one death from botulinus poisoning are likely to be dangerous, first, because of the possibility that low grade olives may be used in their preparation, second, because the processing may not be thorough, third, because the high flavor of the mixture is likely to mask the odor of decomposition.

It is a safe rule to follow in the case of all food products to destroy any article which shows evidence of spoilage. The department has not the authority under the law to compel the trade to reprocess its stocks as suggested, but believes that the industry should undertake such measures voluntarily.

A farmer's labor devoted to producing wheat in 1830 resulted in an average of hardly more than 3 bushels per work day of 10 hours. As the result of improved agricultural methods and machinery, says the United States Department of Agriculture, his labor for 1 day now averages a product of 60 bushels, or 20 times as much as before.

Per acre of production, the gross value of the tobacco crop to producers declined from $68.24 in 1865–1874 to $53.78 in 1895–1904. Then followed rapid rise to $83.60 in 1905–1914, and $120.05 in 1916, $197.92 in 1917, $243.62 in 1918, and $285.37 in 1919, as shown by the Bureau of Crop Estimates, United States Department of Agriculture.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Kill Bugs, Save Uncle Sam $76,000.

In treating one lot of rice and one lot of beans the Navy, acting upon the advice of the United States Department of Agriculture, saved the Government about 27 times as much money as will be appropriated for all stored products insect work during the coming fiscal year under the recommendation to Congress of the Committee on Agriculture.

The Navy bought 1,530,492 pounds of rice for $111,190.24. It was found to be slightly infested with the rice weevil, and steps were taken to salvage it and sell it at a loss of $53,796.79. Instead, however, the Bureau of Entomology of the Department of Agriculture recommended treatment. The rice was reconditioned at a cost of $12,733.69, after which it was sold for $103,308.21. The saving to the Government was $33,181.07.

Another purchase was 1,322,614 pounds of navy beans for $122,341.79. They were infested with bean weevils and were about to be sold by the salvage department for $66,130.70. Instead, they were reconditioned at the suggestion of a Department of Agriculture specialist at a cost of $9,258.30. After being reconditioned they were sold for $119,035.26. The saving effected by the treatment was $43,646.26.

Garden Seeds Plentiful and Cheaper.

Indication that there is a plentiful supply of garden seeds this spring, with the possible exception of certain varieties of peas, is contained in reports received by the Bureau of Markets, United States Department of Agriculture, from representative seed dealers engaged in wholesale, retail, and mail-order business. Study of several mail-order catalogues indicates that in the majority of cases the prices of seeds are less than for the past two years, the greatest reduction being for cabbage seed. Marked reductions are also shown in the prices for garden beet, carrot, onion, spinach, and English and Swedish turnip seed. An increase of about 18 per cent is noted in the prices for garden peas, while similar increases are shown for muskmelon, summer and winter squash, and tomato seed. This condition should prove favorable to extensive garden planting, which is urged by the United States Department of Agriculture.

Replies to inquiries addressed to representative seed dealers showed that a few in industrial centers, particularly in the East, were selling from 10 to 30 per cent less seed than last year. The cause, apparently, was the shortage of labor on truck farms. Compared with normal conditions before the war, the reduction in these eastern centers ranges from 10 to 45 per cent.

On the whole the sales to home gardeners seem to be larger than those of last year, ranging from a 5 per cent increase in some sections to 50 per cent in others. Dealers in the most northerly cities were unable to report adequately because the season had not advanced sufficiently at the time replies were sent in.

Radio Amateurs Get Weather Reports.

An amateur radio operator in North Dakota has written the Weather Bureau, United States Department of Agriculture, that he is daily receiving the weather forecasts sent out by the powerful wireless station at Arlington, Va. In Kansas, according to reports, the State agricultural college is now sending out weather reports by wireless every morning except Sunday, for the benefit of a considerable number of amateurs, many of whom live in the rural districts of that State and so are able to be of service to the farmers in their neighborhoods. No doubt in other parts of the country there are those who are "listening in" on the dispatches sent out by high-powered radio towers.

The sending of the Weather Bureau's forecasts by radio is in charge of the Navy, hence at many points far inland it is improbable that amateurs could pick up the messages. The Weather Bureau has carefully considered the possibilities of further use of the wireless in inland districts, but owing to an arrangement made some years ago whereby the bureau relinquished radio activity in favor of the Army for inland communication and the Navy for coastal work it has not been feasible to extend the forecast service in this manner. However, what the amateur in North Dakota and those in Kansas have been able to do suggests that others might "pick up" the weather reports, thereby securing them considerably in advance of the published reports. To do this it will be necessary to ascertain the exact time that the forecast is sent out and the wave length used. The Weather Bureau will be glad to inform inquirers as to the points at which the Federal Government sends out weather reports by radio, but it will not have information as to such activities by other agencies.

Trucks on Eastern Farms Increase.

Figures obtained by the United States Department of Agriculture in connection with the investigation of the use of motor trucks by farmers indicate that the rate at which eastern farmers have been adding motor trucks to their farm equipment has increased rapidly during the last three years. Reports gathered by the Office of Farm Management from approximately a thousand farmer truck owners in the New England States, New York, Pennsylvania, New Jersey, Delaware, and Maryland during January and February, show that at that time over 80 per cent had owned their machines less than three years. The length of time 955 of these men had owned their machines is as follows: Less than one year, 373; more than one year but less than two, 237; more than two years but less than three, 181; more than three years but less than four, 86; more than four years but less than five, 37; more than five years, 41.

These reports were all from farmers who had purchased new trucks for their individual use. Reports on secondhand machines and on truck attachments for pleasure cars, as well as trucks used primarily for custom work or on regularly established routes, were not included in the count. While it is impossible to determine just how many of the trucks which have been in use only one or two years were purchased to replace other trucks, worn out or discarded, it is known that a large percentage of the reports covers first experience with trucks.

Make Every Farm Feed Its Stock.

The production of enough feed for its family live stock, work stock, and commercial live stock is second in importance only to producing food for the family, in the opinion of the United States Department of Agriculture. Farm management studies in the Southern States indicate that the most profitable farms not only produce the necessary farm feeds but have a surplus of them to sell, and that the live stock is usually of better quality and better grade on the farms producing a surplus than on

farms where staple feeds are bought. These facts are brought out in a series of 16 tests formulated by the Department of Agriculture to show whether or not a farm is being efficiently managed.

The average farm family, made up of five adult persons or their equivalent, requires for its proper maintenance 2 cows, 40 fowls for furnishing eggs and poultry meat, and 1 pig for each adult person or his equivalent. Enough calves should be raised to replace each cow reaching the age of 8 years. This family live stock, it is calculated, will require 1 ton of corn and cob meal, 1,234 pounds of cottonseed meal, 55 bushels of corn, 40 bushels of oats, 4,200 pounds of cowpea hay, 2,100 pounds of oat hay, 4,200 pounds of corn roughage, green forage from 2 acres, and 5 acres of pasture or their equivalent. A fair provision to a head for work stock is 60 bushels of corn, 40 bushels of oats, and 3 tons of roughage. The arrangement of crops and pasturage to meet these requirements is suggested in United States Department of Agriculture Circular No. 83, "Testing Farms in the South for Efficiency in Management."

Kill Many Rabid Animals in West.

That the killing of wild animals afflicted with rabies is an important phase of the work carried on by the Bureau of Biological Survey, United States Department of Agriculture, is indicated by reports received from the bureau's skilled hunters in the West. In western regions where predatory animals are found both human life and live stock are seriously menaced when rabies appears. In Washington, for example, one of the hunters reported that a rabid coyote had attacked two boys sleeping in a haystack and had badly torn the bedquilts covering them before he was driven off. In Oregon a young woman was set upon by a rabid coyote, which finally ran into a store, where it was shot. The following day three school children on horseback in the same locality were attacked by another coyote, which they succeeded in killing at serious risk to themselves. On a farm near Olympia, Wash., five head of cattle, one hog, and four dogs were killed because they were afflicted with rabies.

A hunter in Bannock County, Idaho, stated that he was endeavoring to locate rabid coyotes in his region, believing them responsible for the loss of many cattle in that vicinity which had gone mad. In five of the Northwestern States there was a very serious outbreak of rabies in 1914 (before Federal control measures were instituted), and as a result more than 1,500 people were bitten and over 50 died. While the disease still exists in scattered localities, the Federal measures undoubtedly are very largely responsible for the prevention of its general spread throughout the western range States.

What Women Want to Know.

Here are a few of the questions that were asked home demonstration agents in Illinois during December. They indicate the kind of service which these extension workers from the United States Department of Agriculture and the State agricultural colleges give (and are willing to give to a still greater extent) to the people in their territories. They may not know the answers to all the questions asked them, but they are in touch with sources of information, both State and Federal, and can obtain the knowledge from an authority on the subject. Demonstration agents in any State doubtless could give as diversified a list as this one from Illinois.

"Please plan a sample menu for a middle-aged man and woman who have but $7 a week for food."

"I cooked lye hominy in an aluminum kettle and it turned quite black. What was the trouble?"

"Can you suggest suitable food for an old man with a weak stomach?"

"What points should be observed in the selection of a pressure cooker, wheeled tray, and vacuum cleaner."

"Is there a possibility of putting a satisfactory indoor toilet in a house that has neither furnace nor water system?"

"I want to make soap of cracklings and lye. The recipe says to use an iron kettle. Will it do to use my copper, apple-butter kettle?"

"Where can I get a good glass table top?"

"I would appreciate information about any practical electrical dishwasher."

"Can you tell me if the Elberta peach is a good variety to plant in northern Illinois?"

"The women in our unit want to beautify their yards. Can you send us material on landscape gardening?"

"Please send me suggestions for home bureau exhibits at county fairs."

"I have some chickens I do not care to keep on feeding. Please send me directions for canning them."

"Can you tell me if ——— malted milk contains the necessary vitamins?"

"Will you please suggest a program for our women's club this year?"

"Will you please send to us a simple play for children which will emphasize the need of milk?"

"Please send us budgets for an $1,800 income. There are four in the family."

"Can you direct me to an orthopedic clinic near ———, where I may take a child who had infantile paralysis?"

"Circles" Mean More and Better Eggs.

Two egg "circles" in Lee County, Miss., last year sold $12,135.40 worth of eggs, and so far this year are beating last year's records.

An egg "circle" is an association of producers for the cooperative marketing of eggs. It may have few members or many. The eggs, which bear the "circle's" stamp, are guaranteed, and they command better prices than eggs which have been improperly handled. As poultry on the average farm is under the care of the farmer's wife most of an egg circle's members are women.

The first egg circle in Lee County was organized near Shannon, in 1915, by the county home demonstration agent, who is supervised by the United States Department of Agriculture and the State colleges. There were only 8 members at first, but the number soon increased to 20.

The circle adopted certain rules, some of which were to gather the eggs once or twice daily, to stamp name and address of "circle" with individual's number on each egg, and to meet once a week in winter and twice in summer. If a member was guilty of selling a bad egg, she must pay a fine. The individual's number on the shell of a returned egg located the guilty one. The "circle" eggs were packed in 30-dozen egg cases. The secretary-treasurer kept accounts and settled with the member the week following the sales. Turns were taken in carrying the eggs to town. This circle still exists, and as time has gone on has broadened its field of cooperation. Now it sells butter as well as eggs, and the members buy many of their supplies cooperatively.

Other communities in the county have taken up the idea, and some of them are doing even bigger things than the original group. Two of the other "circles" have a membership of 60 each. Besides increasing their own incomes the members of an egg "circle" put a better class of eggs on the market. The social and educational features of a "circle" are also considerable.

The two largest "circles" in Lee County ship most of their eggs directly to Memphis. In 1919 they netted $1,500 over what they would have received on the local market for their products.

The Shannon "circle" last year sold $5,831.10 worth of eggs; and the Baldwin, the other large "circle," sold $6,304.30 worth. These two "circles" in 12 months' time marketed 28,746 dozens of eggs.

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Miss. C. M. Vielmann.
1 B-Z

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TELLS WHAT GOVERNMENT HAS DONE FOR COTTON INDUSTRY

Secretary Meredith Addresses South Carolina Branch of Cotton Association

Early-Maturing Varieties Created by Plant Breeders Have Followed in Wake of Boll Weevil—Markets Have Been Stabilized

"I should like to have you know what I mean when I say that the Department of Agriculture is at your service. It means that 21,000 employees—4,000 in Washington and 17,000 in the field—are working on your problems; their results and their advice are yours for the asking," said Edwin T. Meredith, Secretary of Agriculture, in addressing the South Carolina branch of the American Cotton Association in Columbia, March 25. "Take, for example," continued the Secretary, "the service which the department is giving on the production and marketing of just one crop—cotton. It means that the best scientific talent in the country is working in the Bureau of Plant Industry to give you better varieties of cotton and to develop methods of growing cotton that will produce larger crops.

Working to Protect Cotton

"It means that the Bureau of Entomology is developing a method of poisoning the boll weevil, which promises to control it, and that it is showing in the field how to use this method effectively. It means that the Federal Horticultural Board, working in cooperation with the States, is fighting a great battle to keep the pink bollworm, recently found in new localities, out of your cotton fields. It means that the Office of Farm Management is devoting the energies of its experts to learn for you more economical methods of producing cotton. It means that a staff of specialists in the Bureau of Markets is furnishing reports of cotton-market conditions, has established grades for cotton that enable cotton trading on a basis of fair dealing to you, is encouraging better warehouse conditions to save your crop from loss, and is studying new uses for cotton that will provide a steady demand for all grades. It means that the Bureau of Crop Estimates, through its reports of crop conditions, provides dependable information which stabilizes prices and enables price adjustments to be made in accordance with the facts of supply and demand. It means that the States Relations Service, through its county-agent system, is bringing this expert advice and help right to your farms.

People Should Use Department

"But that tells only a part of the story of how your Department of Agriculture can help you. Other branches and other groups of experts are contributing an equal share of this service and dealing with many phases which your growing, broadening system of agriculture now presents. Your live stock, your forests, your roads, your rural engineering problems also are the concern of this organization.

"I want you to study the Department of Agriculture and use it. I believe it will mean dollars and cents to you in your business. I am going to resolve myself into a sales manager of the department, because if I can increase by 5 per cent, 10 per cent, 20 per cent, 30 per cent, 50 or any other percentage, the number of people—farmers, businessmen, and others—who are taking advantage of its usefulness, then I feel that I have accomplished part of what I would like to do in the interest of the whole country. In that I want your help. I want your cooperation. I want you to work with us in making the department more and more effective, and more used by more people.

"The total value of all crops in the 11 southern States in 1919 was approximately five and one-third billion dollars, as compared with one and one-half billion in 1909, an increase of more than 250 per cent. The total value of crops in the cotton States in 1919 was approximately the same as the total value of all crops in the United States in 1909. In 1909 these 11 cotton States grew about 30 per cent in total value of crops for the United States, whereas in 1919 they grew 34

(*Continued on page 7.*)

PRELIMINARY REPORT SHOWS COST OF GROWING COTTON

Department Finds "Bulk Line" of 28 Cents a Pound for 1918 Crop

Analysis Made from Records of 842 Farms in Alabama, Georgia, South Carolina, and Texas—Cost of 1919 Crop Higher

WHAT IS THE "BULK LINE"?

Department of Agriculture specialists explain that "bulk line," is the line that marks the point on a scale of costs about which the price of a commodity must hang if an adequate number of producers are to be kept in the business.

The United States Government used it during the war for price fixing in industries other than agriculture, setting a price so that from 80 to 90 per cent of a commodity could be produced at a profit. A certain percentage of producers may be expected to lose on a given staple in any given year, but economists agree that if prices sink so low as to make this percentage very large, say as low as the line of the average cost of production, so many will lose that production of that staple will tend to fall off until prices rise to a point where they will again cover the cost of the bulk of the product.

The more generally farmers study their costs and adjust their production on the basis of costs and prices the more readily will economic forces operate to maintain production on a profitable basis.

The farmer needs to know his costs.

A preliminary report on the cost of cotton production for 1918, just issued by the United States Department of Agriculture, shows a "bulk line" cost of 28 cents per pound of lint. At a price fixed on this basis, 85 per cent of the cotton produced on the 842 farms from which cost figures were obtained would have been produced at a profit, and 66 per cent of the farmers concerned would have made money. At a price fixed on the basis of average cost of production—23 cents—only 351 of the 842 farmers, or 41.7 per cent, would have made a

"BETTER SIRES—BETTER STOCK" CAMPAIGN GOES AHEAD—ARE YOU IN IT?—Page 4.

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profit. Owing to reduced yields and increased wages the cost of producing the 1919 crop has been considerably higher.

Records from 842 Farms

The data from which these figures were derived were gathered by the Office of Farm Management during May and June, 1919, in parts of Alabama, Georgia, South Carolina, and Texas. The records, which are for the 1918 crop, show in detail for each of the 842 farms the expenditures that should be charged to the cotton crop for labor, seed fertilizer, manure, baskets, sheets, and sacks used in picking, ginning, bags, ties, use of land, use of machinery, insurance, taxes, and overhead. These figures have just been tabulated, and the results of the survey will soon be published in full.

It was found that the net cost of production ranged from 8 cents a pound to $1.07. Three farms, totaling only 35 acres, produced cotton at the minimum cost. Only 22 farms produced at a cost of less than 14 cents, while over 50 show costs ranging from 50 cents to $1.07 per pound.

The average yield of lint cotton for all districts was 227 pounds per acre. There was a variation in yield from 78 pounds per acre for the lowest producing 10 farms to 481 for the highest producing 10 farms.

Per-Acre Yield Controls Cost

Yield per acre, in general, shows a controlling influence upon cost per pound. Where yields were high the cost per pound was usually found to be comparatively low, and vice versa. For example, the operator who is found to produce 300 pounds of cotton per acre at a cost of $60 per acre, produces at the rate of 20 cents per pound, while the operator whose yield is but 150 pounds, though he keeps his acre cost down to $45, produces at the rate of 30 cents per pound.

It is pointed out that the "bulk line" as determined for these 842 cotton farms, almost coincides with the price actually received for the crop in question, namely, about 29 cents. The season of 1918 admittedly was an exceptionally prosperous one for the cotton growers, and only 12 per cent of the farmers from whom cost figures were obtained grew cotton at a cost in excess of the price that prevailed for the 1918 crop.

Fifty-one scattering farms had unit costs exceeding 50 cents. This group represented eight-tenths of 1 per cent of total produce of the 842 farms. Space does not permit these to be shown.

The following table summarizes the results of the cost investigations:

Variation in net cost per pound of cotton as shown by records on 842 farms in Alabama, Georgia, South Carolina, and Texas (1918 crop).

Net cost per pound of lint.	Number of farms.	Acreage.		Production.	
		Total per group.	Cumulative per cent.	Total pounds per group.	Cumulative per cent.
$0.08	3	35	0.10	10,200	0.13
.09	.....	.....	.10	.....	.13
.10	2	31	.19	12,000	.29
.11	7	161	.67	61,000	1.09
.12	3	60	.85	16,175	1.30
.13	7	256	1.62	77,430	2.32
.14	11	531	3.21	149,168	4.28
.15	12	864	5.79	306,503	8.31
.16	24	1,549	10.42	391,470	13.46
.17	24	1,213.5	14.05	266,936	16.97
.18	37	2,386	21.18	533,801	23.99
.19	30	1,487	25.62	331,842	28.36
.20	47	3,169.5	35.09	798,920	38.87
.21	48	2,229.5	41.75	529,945	45.84
.22	45	2,037.5	47.84	456,512	51.85
a.23	a 51	a 2,401	a 55.02	a526,054	a 58.77
.24	58	2,718	63.14	629,221	67.05
.25	38	1,956	68.99	409,286	72.44
.26	39	1,885	74.62	402,587	77.74
.27	37	1,345.5	78.64	292,190	81.58
b.28	b 37	b 1,215.5	b 82.27	b258,900	b 84.99
.29	31	898	84.95	202,240	87.65
.30	28	981	87.88	205,408	90.35
.31	19	377	89.01	67,130	91.23
.32	12	201	89.61	38,461	91.74
.33	26	662	91.59	156,415	93.80
.34	19	815	94.03	135,225	95.58
.35	13	283.5	94.88	55,280	96.31
.36	8	108.5	95.20	19,940	96.57
.37	7	132	95.59	22,945	96.87
.38	7	146	96.03	27,990	97.24
.39	5	51	96.18	8,300	97.35
.40	5	85	96.43	15,950	97.56
.41	9	211.5	97.06	35,540	98.03
.42	3	64	97.25	10,650	98.17
.43	5	39	97.37	6,231	98.25
.44	7	108	97.69	17,088	98.47
.45	8	105	98.00	16,734	98.69
.46	7	71	98.21	11,348	98.84
.47	4	48	98.35	9,500	98.97
.48	3	42	98.48	6,571	99.06
.49	2	13	98.52	1,775	99.08
.50	3	25	98.60	5,040	99.15

a Average cost. b Bulk-line cost.

EASTER LILY AMERICANIZED BY DEPARTMENT'S SCIENTISTS

That the Americanization of the Easter lily is entirely practicable—a fact which eventually may make florists wholly independent of foreign bulb growers—has been demonstrated by the work of the United States Department of Agriculture horticulturists at the Arlington Experimental Farm, Roslyn, Va. Just now several hundred plants are coming into bloom. They have been grown from seed produced on the farm instead of from bulbs imported from Japan or Bermuda, as is the practice of American florists. At the present time approximately $250,000 is commercially expended each year importing Easter lily bulbs.

Not only are the Agricultural Department's lily plants a thoroughly American product, but the manner of growing them brings them to flower in approximately 15 or 18 months, whereas foreign-grown bulbs usually require three years to produce. This shortening of the growing period before flowering not only saves much time, but also lessens opportunity for the bulbs to become infected with disease, thereby materially reducing the risk of the grower.

Some of the plants now in bloom at Arlington have grown from bulbs which had been discarded after they had flowered once, showing that the florist's practice of throwing away such bulbs is not always to be followed. Another feature of the experiments has been to grow some of the Easter lilies outdoors, whereas florists have commonly thought this an unsafe practice as far north as Washington. It has been found that Easter lily bulbs will winterkill in the Gulf Coast States while surviving outdoors in the colder regions. The usual mildness of the extreme south produces top growth which is killed when a sudden drop in temperature occurs, whereas the normal cold farther north keeps the bulbs dormant.

CONTROL FOR CABBAGE "FIRE BUG"

The cabbage crop of the Southern States suffers severe losses from the ravages of the harlequin cabbage bug. The affected plants wilt and die soon after attack as though swept by fire, hence the name "fire bug." This bug, which also is called "calico back" and "terrapin bug," also injures cauliflower, kale, turnip, radish, and other cole crops, and after destroying fields of these, attacks various other vegetables. Several generations are produced each year.

Cleaning up the cabbage stalks and other remnants as soon as the crop is off, preventing the growth of weeds and the accumulation of rubbish, using trap crops of mustard, rape, or other early crop, burning over infested patches and fields and destroying the insects by means of a hand torch and other mechanical measures, are the best methods of control, according to Farmers' Bulletin 1061, "Harlequin Cabbage Bug and Its Control," recently issued by the United States Department of Agriculture.

The first appearing bugs should be killed before they have a chance to breed, or if the fields become infested later the bugs should be destroyed late in the season so as to leave fewer to survive the winter.

Cooperation with others who grow cole crops is an absolute necessity in dealing successfully with this pest.

The new bulletin may be obtained free, as long as the supply lasts, on application to the department.

Both the Stallion and the Brood Mare Should Be More Carefully Selected

Progress in the average quality of horses produced in the United States has not kept pace with the progress made in many agricultural lines, say animal husbandry specialists in the United States Department of Agriculture, for the reason that the farmer, in too many instances, has not given the careful thought to this subject that he has to his other problems. This is true, moreover, in spite of the fact that efficient horse-power is one of the most important factors in the economical production of agricultural products.

The average prices of horses during the war remained practically at a standstill, even decreasing slightly, while the prices of meat animals increased tremendously, even more than doubling in some cases. This had a discouraging effect on horse breeding, which resulted in a decrease in the number of mares bred in 1918 and 1919.

Demand Depends Largely on Quality

There is to-day, however, a great scarcity of high-class, efficient horses and mules and a strong demand and good prices for that class. The demand and the price for the mediocre work animal, on the other hand, are low. This should emphasize the necessity for the greatest endeavor to reduce the number of inferior horses produced. If the right kind of horses and mules, the kind for which there is always a market, are to be produced the same care must be given to their production as is given by the breeders of cattle, sheep, and swine.

What is needed more than anything else in the production of our work stock is greater care in the selection of both the stallion and the brood mare, according to the United States Department of Agriculture. The poor producing brood mare should not be bred. It is a losing proposition to breed a poor producing brood mare, even to the best stallion, or to breed the good producing brood mare to an inferior stallion, with the hope that a good foal may be produced. While occasionally a good one will be produced in this way, the results in most cases will be disappointing, and a foal will be born that will not mature into a work animal valuable enough to pay for the cost of the feed and care necessary to raise the foal properly.

It is a fact that many progressive farmers balk at paying a reasonable service fee for a good stallion and will breed to an inferior stallion because of the lower fee. It is false economy to stop at a few dollars when it comes to the best horse. It is the colt, and not the high service fee, which counts most in reckoning profits. It costs but little more to raise the $250 kind than it does the $125 kind.

A Decrease in Work Stock

The result of the decrease in the number of mares bred in 1918 has been a decrease in the number of horses. The estimates of the Bureau of Crop Estimates of the United States Department of Agriculture show a decrease of 373,000 in the number of horses on farms January 1, 1920, as compared with January 1, 1919, and an increase of 41,000 mules, or a net decrease of 332,000 head in our work stock. Indications are that there was a still further decrease in the number of mares bred in 1919, but the result of such decreased breeding will not be shown until after the 1920 colt crop is estimated. If the decreased breeding in 1919 was as great as seems to be indicated, the estimate of January 1, 1921, will show a further decrease in the number of horses. This effect of the decrease in horse breeding will not be fully felt until about 1923, or when the foals born in 1919 and 1920 have become of workable age. In many sections the work stock is being used up without any provision for the future.

Opportunity for Farmers

The country must depend on the farmer more than ever for the production of horses needed for farm and other work, for the number of men engaged in extensive horse breeding has become less and less from year to year. The farmer, in order to produce the efficient horse, must use the greatest care in the selection of his breeding stock. The production of greater efficiency in our work animals would not only mean greater remuneration to the breeder, but also greater efficiency in our agricultural production.

MAY SHIP VEAL UNSKINNED; SHOULD BENEFIT OWNERS

Changes in Federal meat-inspection requirements by which slaughtered calves from regions quarantined because of the cattle fever tick may be shipped to market without the skins having been first removed were announced to-day by the Bureau of Animal Industry, United States Department of Agriculture. The amendment is expected to benefit cattle raisers in tick territory, because it should enable them to get better prices for their calves. It also may help in the tick-eradication work, because it will encourage the sale of young stock for slaughter and thus reduce the number of animals that must be dipped. These benefits are expected to be especially noticeable in Texas and Florida.

This modification in the requirements is made possible by the fact that as a result of the cattle-dipping operations throughout the Southern States tick infestation is much lighter and the tick infested area has been greatly reduced within the past three or four years.

The change in the regulations was made at the suggestion of a tick-eradication official of the Bureau of Animal Industry, who said:

"Ticks carried on dressed calves shipped in refrigerator cars to other packing establishments or markets are not likely to spread tick-fever infestation to cattle in tick-free areas. While there is a possibility of such an occurrence the chances are too remote to warrant the enforcement of the old regulation. This assumption is further sustained by the fact that meat-inspection regulations require the removal of all filth, litter, or foreign material from the skins of calves before dressing the carcass. It is believed that this precaution will result in the removal of practically all half-grown or engorged fever ticks likely to transmit disease.

"When systematic dipping of all cattle in a certain area is to commence on a certain day there is a great tendency on the part of cattle owners to dispose of their holdings or reduce them. It is believed that restrictions likely to impede the advantageous disposal of large numbers of cattle and calves before general dipping orders become effective is detrimental to tick-eradication work. The bureau is not particularly interested in dipping large numbers of cattle in any area, but rather in dipping all cattle in the area every two weeks during the eradication period. Every hundred or thousand or million head of cattle disposed of before systematic dipping begins means just that many less cattle to round up and dip."

By using machinery and participating in agricultural improvement a farmer has been able to produce 56 bushels of oats, on the average, by 1 day's labor of 10 hours. In 1830, a time of hand labor, his average was 6 bushels, or one-ninth as much, says the United States Department of Agriculture.

"BETTER SIRES—BETTER STOCK," GOES AHEAD

LISTS BETTER LIVE-STOCK BOOSTERS

The Farm Bureau News for Summit and Morgan Counties, Utah, publishes the names of local live-stock owners who have enrolled in the Federal-State "Better Sires—Better Stock" movement. Sixteen names are included in the list published early in March. County Agent Stephen R. Boswell is cooperating actively with State and Federal officials in encouraging live-stock improvement in the counties mentioned.

QUESTION BEFORE VIRGINIA FARMERS

In a recent circular, "Better Sires for Virginia," the following statement appears: The question which the farmer is asking is not "Can I afford to use a purebred bull?" but "Can I afford not to use one." The point raised is directed principally at the replacement of inferior beef sires with good purebreds. High-grade steers, the circular explains, dress out a higher percentage of beef and a larger part of it is in the region of the expensive cuts than is true of scrub steers.

EVOLUTION TOWARD BETTER LIVE STOCK

Scrub live stock, 450; grades, 430; purebreds, 173: This is a typical farm example of a gradual change away from scrub animals and toward those of better breeding. Purebred sires bring this change about rapidly.

The figures mentioned represent the live stock on a Florida farm whose owner is enrolled in the "Better Sires—Better Stock" movement. Of the total number of animals listed 44 were sires—all of them purebred. The use of purebred sires of good quality is the goal toward which the better-sires campaign is directed.

NO SCRUBS ON THIS FARM

Purebred sires, 50; purebred females, 114; crossbred females, 762; grade females, 790; scrubs, none: This is the breeding of live stock on a Florida ranch just enrolled in the "Better Sires—Better Stock" movement. The figures represent cattle, horses, swine, sheep, goats, and poultry. There is a noticeable tendency, the United States Department of Agriculture states, for persons who use purebred sires to acquire a considerable number of purebred female stock also.

The value of domestic animals of improved breeding is shown most conclusively perhaps by the rapidity with which persons who keep some good and some inferior live stock dispose of the latter. The case mentioned is believed to be typical of this tendency.

YOUNG HEIFER OUTWEIGHS MOTHER

In support of the "Better Sires—Better Stock" campaign, Milton P. Jarnagin, animal husbandman of the Georgia State College of Agriculture, has furnished the United States Department of Agriculture with the following striking example of improved breeding:

At 15 months of age a heifer from a native scrub cow, sired by a purebred Shorthorn bull, weighed 610 pounds. Its 9-year-old mature dam weighed 605 pounds. Although the heifer was but a half-bred Shorthorn it quickly exceeded its dam in weight because of better breeding.

"BETTER SIRES" IN PORTO RICO

The organization of boys' and girls' agricultural clubs, including poultry clubs, pig clubs, and goat clubs is having a constructive influence on the live-stock industry of Porto Rico. Purebred live stock for breeding purposes is being imported from the United States, and there is an increasing interest in agricultural work among rural schools. One of the newer activities, officially reported to the United States Department of Agriculture, was a meeting at which the "Better Sires—Better Stock" movement was presented in Spanish to live-stock owners.

"PUREBRED SIRES ONLY" NEBRASKA'S AIM

Twenty county farm bureaus in Nebraska have adopted "Purebred Sires Only" work as one of their major projects for 1920 and it is probable that more counties will take up the same activity. The purpose is to bring the importance of improved animals to the attention of individual farmers and to raise the standard of live stock in the State.

A survey of cattle in Gage County, Nebr., showed that only 34 per cent of the bulls were purebred. The "Purebred Sires Only" campaign is to be conducted in support of the national movement for better sires and better stock.

PIGS WITH NO POOR RELATIONS

How a Virginia farmer marketed pigs heavier and more profitable than he had raised in the past is told in a circular, "Better Sires for Virginia," recently issued by the extension division of the Virginia Agricultural and Mechanical College.

"I used to raise scrub pigs," the farmer declared. "I didn't think there was much money in the hog business because I didn't make much. Since using purebred sires I have changed my mind. As a result of using purebred sires my pigs weighed 215 pounds last fall, when the average scrub pig would hardly weigh 150 pounds. Consequently my pigs went to market early, while prices were high, while the man with scrub pigs had to keep his longer and feed them high-priced grain while prices kept going down."

The account is accompanied by a picture of purebred boars which are described as having "a good father, a good mother, and no poor relations."

Grain-Grading Schools Popular; Extend Work to More States

The very favorable reports on the value of the grain grading schools in Portland and Astoria, Oreg., from members of the grain trade, inspectors, samplers, weighers, dock and elevator superintendents, who have been in attendance, have resulted in plans by the Bureau of Markets of the Department of Agriculture for similar work in other States. These schools have been held once or twice a week, outside of official hours, in the Federal Grain Supervision offices, any person interested in grain handling being invited to attend.

Such a school has now been organized in Spokane, Wash., and meets once each week in the office of Federal Grain Supervision for the purpose of learning the correct application of the Federal grades for shelled corn, wheat, and oats. Probably one of the most beneficial results of these schools is the opportunity for solution of individual problems arising in the handling of grain at the docks, mills, and elevators. The fact that registration for this work already has been such as to tax the space and equipment facilities is causing some concern to the Spokane Federal grain supervisor.

The use of fresh vegetables conserves meats, grains, and other foods produced on farms.

The city back-yard or vacant-lot garden provides a supply of vegetables at home without transportation or handling costs. Vegetables from the home garden are fresher and more palatable than those bought from a distance. Many persons who work in offices, stores, and factories have time mornings and evenings that may well be devoted to the cultivation of a garden, thus utilizing spare time and idle land for food production.

Vital Points in Grain-Standards Act— How Shippers May Avoid Violations

Although the United States grain standards act has been in force over three years, many people are still uninformed and continue to plead ignorance of this law. The Bureau of Markets of the United States Department of Agriculture, which is charged with the enforcement of the act, in a recent announcement has again called attention to the provisions of the law and the penalties that may incur on account of violations.

Grain-Grading Don'ts

For the benefit of all persons interested in the shipment of grain, the Bureau of Markets calls attention, among other things, to the following important requirements in the grain standards act, violation of any of which subjects the offender, upon conviction, to a fine of not more than $1,000, or imprisonment for not more than one year, or both.

Don't fail to have grain inspected at point of shipment.—This applies to all grain for which standards have been fixed, and which is sold, offered for sale, or consigned for sale by grade and shipped or offered for shipment across a State line or to a foreign country. However, this does not apply to grain which is sold subject to inspection at some point en route, or at destination, or grain which is shipped from a point where there is no inspector to another point where there is no inspector. The shipper, according to law, is required to secure proper inspection.

Don't sell any grain by a grade other than one of the official standard grades.—This applies to any grain for which standards have been fixed that is shipped or delivered for shipment across a State line or to a foreign country.

Don't describe any grain for which standards have been fixed under the act, as being of a grade other than one fixed officially.—This applies not only to making out certificates but also to oral or written agreements of sale or agreements to sell. It also includes any invoice or bill of lading or other shipping document.

Don't certify that any grain for shipment or delivery for shipment is of an official grade unless you are a licensed inspector.—This applies among others, to any one authorized or employed by a State, board of trade, chamber of commerce, or other association, to inspect or grade grain and also to persons whose licenses have been suspended or revoked.

Don't improperly influence any licensed inspector in the performance of his duty.—This also includes any attempt to use improper influence.

Don't interfere with an officer or employee of the United States Department of Agriculture in the performance of any duties authorized by this act.—The Department of Agriculture also calls attention to the fact that no person, except as permitted in section 4 of the act, is allowed to represent that any grain shipped or delivered for shipment in interstate or foreign commerce is of a grade fixed in the official grain standards other than as shown by a certificate therefor, issued in compliance with the act. This prohibits overinvoicing. Failure to observe this requirement subjects the shipper to the penalty of having the facts made public in the form of findings by the Secretary of Agriculture.

Inspection of Mixed Grain

At the present time there are no official grades for mixed grain. If he so desires, a person offering a lot of mixed grain for inspection may have it inspected and graded according to the local standards for mixed grain which may be in effect in any particular market. Such inspection, however, would not be made under the United States Grain Standards Act, and the inspector would not be acting in the capacity of a licensed inspector. However, it is the view of the department that any interested party may offer for inspection under the grain standards act any lot of grain which contains or is believed to contain grain of a kind for which Federal standards have been fixed.

Frequently it is difficult to state whether a particular lot of grain should be classed as one of the grains for which standards have been fixed before the same has been inspected. If, for example, a carload is composed largely of wheat, but contains an appreciable quantity of rye, an interested party may have this car inspected by a Federally licensed inspector. If the inspector finds, for instance, that 12 per cent of the grain is rye he can issue a certificate showing the result of his determination. The certificate should show that the grain is "not wheat within the meaning of the grain standards" because of the 12 per cent rye. The certificate may also state the percentages of other factors, if this information is desired.

Right to Appeal

If the party interested is not satisfied with this determination the department holds that he has the right to appeal to the Federal supervisor. His decision will be set forth in a Federal Appeal Grade Certificate showing in this case whether the lot is wheat or not wheat according to the standards.

Service and Regulatory Announcements, No. 58, which contains more detailed information regarding the subjects touched above, together with other information of interest to grain growers and shippers, can be had by addressing the Bureau of Markets, U. S. Department of Agriculture, Washington, D. C.

DULUTH FOREIGN-BORN WOMEN LEARN AMERICAN HOME WAYS

Webster school in Duluth is located in the middle of one of the Finnish districts of that city. There, in January, went the traveling kitchen for a week's visit. It was not new territory to the home demonstration agent in charge, for she had conducted a sewing class there in 1919 and had grown to know many of the Finnish people. From the start, the cooking demonstrations were a success. Each day showed an increase in attendance, and faces were expressive of appreciation at being shown American methods.

Quite as important as the methods taught is the help given the foreign-born women to learn a little more English. The greatest good of all is the better feeling engendered toward the people of their adopted country. The friendly help given at the cooking and sewing classes counteracts much of the indifference to his welfare which the new citizen not infrequently finds in this country.

One of the women who attended every demonstration had been in this country only two months and was the first to say she was going to make a fireless cooker by the instructions given at the demonstration.

At the close the Finnish women asked the home demonstration agent if she thought it would be interesting to the Americans to have demonstrated the making of some Finnish dishes. She did, the invitations were sent out, and the result was one of the finest Americanization meetings held in that city during the past year.

One woman made coffee bread and showed how to braid it, and another made salad. These were later served with coffee to the guests.

In the social hour which followed both Americans and Finns came to a better understanding of each other, although conversation was limited as many of the Finnish people spoke little English. They could however, smile, and make motions.

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

SECRETARY REVIEWS WORK OF COL. GRAVES AS FORESTER

Following is a copy of the letter in which the Secretary of Agriculture accepted the resignation of Col. Henry S. Graves from the position of Chief Forester:

MARCH 24, 1920.

MY DEAR COL. GRAVES: Your decision that you can not, in justice to yourself, continue longer at the head of the Forest Service is one which I have received with the deepest regret. I am compelled to accept it much against my inclination, because I can not, in fairness to you, do otherwise. The loss of your services, however, is a matter of great moment to the Department of Agriculture, as well as to the public interests which you have so effectively protected and advanced; and I sincerely regret that I shall not have the benefit of your counsel and experience as Chief Forester during the remainder of my term of office here.

The decade through which you have guided the Forest Service has been notable in accomplishments, and the organization which you have developed to a high plane of efficiency has won not merely the sincere respect but the hearty approval of the West, which is perhaps most directly interested in it, as well as the country at large. More and more you have made the national forests serve the public welfare. Their usefulness has been expanded along lines which make the most of their productive resources, scientifically yet practically, and always with a sound, far-sighted public policy. You have seen to it that they are utilized in helping the home builder, in promoting local prosperity, and in contributing largely to the benefit of the people as a whole. Thus you have given stability and permanence to the public forest enterprise—which means true development as against destructive exploitation. You have handled the public resources in the interests of the many as against encouraging or permitting monopoly by a privileged few.

You have put the handling of the public forests on a thoroughly businesslike basis from every standpoint. Under severe handicaps and discouragements of a kind unknown in private business, you have secured an admirably trained personnel, developed a system of administration which I believe to be unsurpassed in effectiveness in any branch of the Government, and conspicuously stimulated, by leadership, a spirit of loyalty and devotion to the interests of the public in your organization. At the same time, you have recognized that the work must be based on technical knowledge—that the public welfare must be served by experts and specialists, just as private business is, if public ownership and management of the great public properties under the jurisdiction of the Forest Service are to meet with the highest degree of success. You have, therefore, emphasized the importance of scientific research and of the application of its results in the business of administration. The progress made under your direction in the development of the basic knowledge of forestry and in its practical application has been no less signal than the progress made in the building of an efficient organization and the working out of good business methods.

You have also carried to substantial completion a great work of land classification, based on sound principles which it became your duty to formulate; so that large areas, in the aggregate, of agricultural lands have been opened to acquisition and conversion into farms, while the lands suited to permanent public ownership and administration for forest purposes have been classified as such—a step in itself of utmost significance for the permanence of the communities and the resources in question.

On your initiative primarily a policy of road building for the development of the national forests and the benefit of the public has been entered upon. During the war you not only brought your organization through intact and enabled the national forests to contribute up to capacity to the war effort of the country, but you employed it extensively in the location of forest supplies of war materials and in the solution of important research problems relating to wartime uses of forest products. You assisted largely, both in person and through the release for foreign service of many of your best men, in solving the problem of wood supplies for the American Army in France. Within the last few months you have taken the lead in a movement which I believe to be of the utmost importance, for extending the practice of forestry to lands now privately owned and stopping the needless and short-sighted waste of a great basic resource through forest destruction.

These are large services. By wise judgment, energy, vision, and untiring devotion you have rendered them to a degree that has been and is the pride of all your friends. They entitle you to a large measure of gratitude from the public, to whom they have been rendered, and you may justly be proud of the record you have made.

During the time that I have been here I have thoroughly enjoyed my association with you. Whatever may be your plans for the future, you have my best wishes for complete success in any undertaking in which you may engage. I know you are not going to lose your interest in the forestry problems of the Nation and that the department and the Forest Service will have your cooperation and counsel in the discharge of their responsibilities for the maintenance, development, and sound utilization of our great forest resources.

Very sincerely, yours,

E. T. MEREDITH,
Secretary.

E. A. SHERMAN, OF UTAH, NAMED ASSOCIATE FORESTER

Edward A. Sherman, of Utah, has been selected to succeed Albert F. Potter as associate forester of the Forest Service on the retirement of the latter next month. Mr. Sherman has been assistant forester in charge of the branch of lands in the Forest Service since 1915. In 1903 he was appointed supervisor of the Bitterroot Forest Reserve in Montana, as an officer of the Department of the Interior, which was then in charge of the Federal Reserves.

He entered the Forest Service through the transfer of administration of the forests to the Department of Agriculture, in 1905. In 1907 he was promoted to forest inspector, and shortly afterwards was made chief inspector of the national forests in Montana and northern Idaho.

In 1910, after having served in California for something over a year as supervisor of the Sequoia National Forest, he was appointed district forester in charge of the national forests of Utah, Nevada, and southern Idaho. In this district use of the national forests for live-stock grazing constitutes the leading activity. For this reason the selection of Mr. Sherman to succeed Mr. Potter, an old live-stock man, is regarded as evidencing that grazing matters will be looked after by one thoroughly familiar with the question.

Mr. Sherman's selection as associate forester is on the recommendation of Col. W. B. Greeley, who is to succeed the present forester on the latter's retirement.

TELLS WHAT GOVERNMENT HAS DONE FOR COTTON INDUSTRY

(*Continued from page 1.*)

per cent. On the other hand, cotton accounted for 52 per cent of crop value in these States in 1909, but for only 42 per cent in 1919, which shows the great development that has taken place in other crops than cotton in the last 10 years.

The South's Big Agriculture

"In addition to the crops grown in these 11 States, of which 58 per cent in value was for crops other than cotton, these States now have live stock valued at more than $2,000,000,000, which is more than twice their value of 10 years ago. The value of live stock in the cotton States is gaining on the value of live stock in all other States, the percentage of the total being 20 per cent in 1910 and 24 per cent in 1920.

"If we combine total crop and live stock values in the 11 cotton States we have a total of nearly seven and one-half billion dollars, of which only about 30 per cent is accounted for by cotton.

"These figures show in a broad way the great progress that has been made in crop and live-stock production in the South since 1910, and while they show that cotton is still the greatest single crop, it is less than half as valuable as all other crops and only slightly more valuable than live stock.

"These results emphasize the wisdom of the policy which the department has counseled for southern farmers for so many years, namely, crop rotation, especially including the use of soy beans, velvet beans, peanuts, and other legumes.

"The work was organized and carried on for many years under the direction of Dr. Seaman Knapp, the success of whose organized demonstration work was the forerunner of the establishment of the county-agent system. It is through this diversification that the enormous agricultural resources of the South are being developed and adding to the wealth of the South far beyond what would have been possible had she adhered to the single-crop system.

"Road construction must go hand in hand with agricultural development in the South. The South also should adopt a definite and consistent policy with respect to forestry development and other methods of land utilization.

The Fight on the Boll Weevil

"It has been 28 years since the cotton boll weevil invaded the United States. Since then, it has spread from the Rio Grande to the Atlantic and almost to the northern limit of cotton production, covering within the line of its depredations almost all of Georgia and now the lower portion of South Carolina, and advancing at the rate of from 50 to 100 miles a year. If the cotton-producing industry had remained as it was in 1892, the boll weevil would have destroyed it.

"The use of short-season varieties of cotton and better methods of culture made possible the continued growth of cotton upon a fairly profitable basis. Only recently has an effective method of poisoning the weevils in the field been developed.

"All of the known methods of poisoning were tried and, for one reason or another, all of them failed. Various new methods were tried out and these, also, failed to furnish a means of control. Finally, the specialists of the department hit upon the scheme of applying powdered calcium arsenate as a dust. Properly applied, it does poison the weevil. It is a control measure by which farmers who have taken the trouble to do it right have saved their crops from the ravages of this pest. It has been applied successfully over thousands of acres.

"This method was tested out last year on an abandoned farm, where the farmer had said, 'I give it up,' and had moved. The department divided the field into three strips; the unpoisoned strip on one side produced 48 pounds of cotton, the other strip on the other side produced 60 pounds of cotton, the strip down the middle, where the drinking water was poisoned, produced 480 pounds of cotton.

"Last year there was not enough calcium arsenate or machinery with which to apply it. This year there is enough poison, but the machinery supply is still inadequate. Additional manufacturers are beginning to make dusting machines, however, and in no great while the supply will probably be sufficient to meet the needs. This method, while it may never result in the elimination of the boll weevil, promises effective control.

Short Season Varieties Escape Weevil

"We were able right at the beginning of the boll weevil's depredations, however, to develop strains of cotton and methods of cultivation that made cotton production possible in spite of the weevil. These strains have followed in the wake of the weevil across the continent.

"Most of the short-season cottons which have escaped severe damage by the weevil have been bred in Texas, where the pest first appeared. One of the earliest successful strains developed by the Department of Agriculture was Lone Star. A million acres to cotton land was planted to this strain several years ago and has doubtless increased considerably since then. The cotton growers of Hart County, Tex., estimate that they were benefited not less than $700,000 in one year by planting Lone Star. In order to maintain the purity of the strain, the seed supply is carefully guarded and replenished by the department in a special field station at Greenville, Tex.

"These short-season varieties are usually better cotton than the kinds the farmers planted before, are less injured under adverse conditions, have larger bolls, produce longer staple, and are generally more vigorous plants. Lone Star commonly sells at a premium of from half a cent to three cents a pound over the ordinary varieties. On the one million acres of this variety, estimating a yield of half a bale an acre, that means from 1¼ to 7½ million dollars premium on every crop.

"The entire South should realize that, although it is now producing approximately 60 per cent of the world's supply of cotton, it does not possess a natural monopoly of the possibility of growing short cotton. India, with her large supply of cheap labor, is able to produce a crop in excess of four million bales annually of extremely short staple and at very low cost. For the very long-fiber cotton, such as Egyptian, which heretofore has competed in the market with our Sea Island cotton, there is also the necessity for competition with foreign producers. For the great bulk of the cotton of intermediate length and strength, which is most desired by textile manufacturers, the United States at the present time enjoys a practical monopoly in production, and the demand on the part of spinners for a longer and stronger fiber is constantly growing.

Plant Breeder Develops Important Variety

"The department foresaw the spread of the weevil over the entire cotton-growing area and began a number of years ago preparing for the day when it would reach the Sea Island territory, along the South Atlantic coast. When that day came, the department had developed a variety of cotton that may take the place of Sea Island, a very valuable long-staple cotton that can be grown only in a limited area and upon which certain industries have been largely dependent.

"Back in 1912, there was a young man named Rowland Meade in the Bureau of Plant Industry. He was then only 23 years old, but he had been brought up in that bureau and had studied cotton intensively for a number of years. He found some plants in a field of so-called 'Black Rattler' at Clarksville, Tex., out of which he believed he could develop a variety of Upland cotton that would rival Sea Island in length and fineness of staple. He worked on the problem for four years and when he died, in 1916,

three generations of progenies had been raised from the superior stock.

"The work has been carried forward since his death, and, even beyond the expectation of the men most closely connected with its development, the new variety has been found to have a length and character of staple comparable to that of Sea Island, which as a commercial crop has been wiped out by the weevil. It has actually sold at a premium over Sea Island. The plant looks like Upland cotton, but the fiber and the seed are like Sea Island. The seeds are smooth, making it possible to gin the cotton on the roller gins that are required for very long staples. The bolls are much larger than those of Sea Island and it develops early enough that it can be grown profitably in spite of the weevil. This variety has been named Meade cotton to commemorate the service of the young man who developed it.

"Indications are that about 4,000 acres will be planted to pure Meade seed this year, and probably 10,000 acres to mixed seed. The 4,000 acres of pure Meade cotton to be grown this year should produce enough seed to plant 35,000 acres next year. An important problem now is to produce an adequate supply of seed and to keep the seed supply pure. Hardly any planters are in position to do it and, unless the department can find the money for guarding the supply as it has done with Lone Star and others, the benefits to the industry may be lost or greatly reduced.

Meeting the Pink Bollworm Menace

"Just now the cotton industry of this country is threatened by an even worse pest than the boll weevil, namely, the pink bollworm. Within the past few weeks it has been found to have become established in three parishes in the southwestern corner of Louisiana immediately adjoining the principal infested area in Texas.

"Immediately after the insect was found in Texas the department began what is perhaps the most stupendous effort ever made at insect extermination. Over some 9,000 acres of cotton land in eastern Texas all cotton plants and even the scattered leaves and bolls were collected and burned. The same was done last year in the Pecos Valley and in the Great Bend. Noncotton and regulated zones were established covering the infested areas and buffer strips beyond them and also along certain portions of the Mexican border, to prevent infestation from Mexico. Fumigation houses were established at points of entry all along the Rio Grande, and every carrier that crosses the line, from a freight car that may be fouled with cotton to a Mexican tramp with a possible handful of cotton seed in his pocket or wrapped up in his bundle, is cleaned or disinfected before being allowed to enter the United States.

"The most thorough-going cooperation on the part of the State authorities and the specialists of the Department of Agriculture will be necessary if there is to be any real chance of the eradication of this insect from the thinly infested districts. Louisiana took prompt and apparently adequate action immediately upon the discovery of the pest in that State. The other cotton-growing States are awake to the peril and are declaring quarantines against the infested territory. The Department of Agriculture is ready to place a Federal quarantine against the infested areas in both Texas and Louisiana, and we are in the way of winning the fight.

"Everybody interested in cotton ought to realize, however, that the thing must be done now or not at all. Extermination is possible only at the beginning of infestation, when the insect occupies only very restricted areas. Unless the pink bollworm is exterminated now—and it can not be exterminated except by absolute cooperation of the States concerned—it will sweep over the entire cotton belt and will inevitably inflict much greater damage than the boll weevil has done.

How Cotton Marketing Has Been Aided

"Making cotton, particularly under boll weevil conditions, is an intricate business—but marketing cotton is a still more intricate business. The farmer can learn how to make cotton by watching his successful neighbor much more readily than he can learn how to market cotton by watching successful marketing by some one else. The problems of marketing, however, are inextricably interwoven with the problems of production. For proper marketing methods mean that the farmer will realize more for the cotton which he has grown and will therefore be encouraged in the production of cotton.

"Whatever the difficulties—and they are not to be underestimated—connected with the marketing of cotton, one thing is clearly evident: The farmer who sells cotton should be placed on terms of equality with the buyer who purchases it. This includes more than might at first appear. Among other things, the farmer should have equal information with the buyer as to market prices and conditions; the laws affecting the buying and selling of cotton should be poised in even justice between the farmer who sells and the person who buys; commercial machinery which affects in any way the marketing of cotton should be so administered as to give the buyer and seller an equal chance; and farmers should have the benefits of organization to the same extent that they are enjoyed by buyers.

"The Department of Agriculture has been able to accomplish something toward bettering the marketing conditions of the cotton grower. The Bureau of Markets is engaged in a number of activities which, though much is still to be accomplished, have laid the foundation for wonderful improvement in marketing conditions—and the benefits accrue all the way from the field to the spinner.

Grade and Length Standardized

"In the first place, cotton has been standardized as to both grade and length of staple. Before the promulgation of the official cotton standards the classification of cotton in the various markets of this country was in a highly disorganized state. It was a common occurrence that the same word, applied to qualities of cotton, meant different things in different markets. 'Middling,' for instance, in one market might refer to cotton of quite different qualities from 'Middling' in another market. Now, people all over the cotton belt trade on the same basis of standardization, and that basis is also used on the big future exchanges. There is now left no excuse for juggling with names.

"The operation of the great cotton future exchanges has been regulated by the Federal Congress through the enactment of the United States Cotton Futures Act, the principal responsibility for the administration of which is placed on the Department of Agriculture. The opinion of experts was expressed by the Committee on Agriculture of the House of Representatives that the value of the cotton crop in the hands of the farmers of the South would be enhanced not less than one hundred million dollars annually as a result of the Cotton Futures Act. More recently the Department of Agriculture has classified all cotton delivered on future contracts. The result is that the trade has more confidence in futures. They are worth more to buyers and this enhancement has a beneficial effect on spot values.

"A cotton price-reporting service is maintained by the department with headquarters at Charlotte, N. C., Memphis, Tenn., Atlanta, Ga., New Orleans, La., and Dallas, Tex. The plan is to issue from each of these points a weekly bulletin showing the prices at which lint and seed are actually sold in the various markets. This bulletin furnishes the farmers disinterested and reliable information as to the condition of the cotton market in various parts of the belt, and

puts them in position to sell their product more intelligently. In other words, it turns the light on for both parties to the trade. Before it was established, the seller was too often working in the dark.

More Warehouses Needed

"In the past a large proportion of the cotton crop, carefully estimated at 70 per cent, has been sold by farmers during the four harvesting months, beginning with September. This has resulted in what is known as the 'autumnal dip' in cotton prices during that season. This 'autumnal dip' is not imaginary, as it is sustained by investigations of actual prices made by specialists of the Bureau of Markets. On the basis of a 12,000,000-bale crop, under these conditions, 4,400,000 bales are sold by farmers during the fall months, which can not be used by mills until later months. Unfortunately, too, cotton, possibly for the very reason that it has remarkable resisting powers, is very carelessly handled after ginning and allowed to remain out in the weather. The annual loss from this source has been estimated at from sixty to seventy-five million dollars, on the basis of present prices. The answer to the two conditions just described is adequate, correct, and properly located warehouses, so that farmers may store their cotton, protect it from weather damage, finance it through warehouse receipts and market it in accordance with the needs of spinners rather than at the dictates of their creditors. The United States warehouse act, which is administered by the Department of Agriculture, provides machinery already set up for promoting the warehousing of cotton. It provides for a system of licensed warehouses operating under Government supervision and control. This system is uniform throughout the country, which means that a receipt from one of these licensed warehouses in Texas means the same thing as a receipt from a licensed warehouse in South Carolina. The advantages of Government supervision and of uniformity of operation and receipt are self-evident. The system is permissive. No warehouseman is included under its operations except upon his own request and application. The system as a whole is comparable in the field of warehousing in a general way with the national banking system in the field of financing.

Cooperative Selling is Profitable

"I am glad to note that the matter of cooperation in the marketing of their product is receiving more attention from cotton producers. The individual farmer is rarely in a position to secure the proper information as to market conditions and the value of the cotton he has for sale. Moreover, from the nature of things he is not in position to perform the highly technical duties of commercial handling of cotton. Cooperative organization, where his interests are pooled with those of his neighbor, makes it possible, however, for him to secure information and to obtain the services of expert classers and salesmen for his cotton, and also provides the means through which he may improve ginning, storage, and handling facilities in general and promote uniformity in the production of suitable varieties and qualities of cotton. Within the last three or four years a number of such cooperative associations have been formed throughout the cotton belt, and I understand that you have in South Carolina several associations with which the Bureau of Markets and the Director of Extension are cooperating in this matter. It has been estimated by a Texas official that at least $1,000,000 was added to the income of Texas farmers through premiums received in the sale of cotton on account of the knowledge of the market value on the part of the farmer before selling. Farmers interested in cooperative organizations with which the department has maintained contact have uniformly expressed their gratification at the results achieved through their associations, and have made various statements showing that they have received from $2 up to $20 and $30 a bale more for their cotton because it was sold through the organizations.

"The department has conducted spinning tests for cotton which are of great importance to the manufacturing as well as to the producing end of the industry. Cotton of the different grades has been tried out for breaking strength and for waste so that these factors may be given their proper weight in determining the value of cotton of different grades.

Importance of Cotton Reports

"The great cotton crop of the South, worth last year more than 2 billion dollars, is not only the greatest cash crop of the South but it is also one of the most highly speculative of all crops. For cotton, perhaps more than for any other crop, accurate and dependable information is necessary to stabilize prices and enable price adjustments to be made in accordance with the facts of supply and demand rather than the representations of conflicting interests. The Department of Agriculture, through its Bureau of Crop Estimates, has again demonstrated the efficiency of its organization and system with respect to the 1919 cotton crop. Its December estimate of 11,030,000 bales was confirmed by the March 20 census report of 11,258,000 bales actually ginned. And yet for estimating and forecasting the acreage, yield per acre, and production of this 2 billion dollar crop which is grown in 15 States and which represents the principal cash income of those States, the Bureau of Crop Estimates is provided with less than $20,000 annually, and for the next fiscal year Congress proposes to reduce even that small amount. On the other hand, the Bureau of the Census of the Department of Commerce has more than ten times that amount for simply ascertaining the number of bales ginned after the crop is picked.

Cost of Growing Cotton Just Announced

"Nobody has known just how much it has cost to produce cotton. The Department of Agriculture undertook to find out. The Office of Farm Management began a series of studies in the cost of producing cotton under varying conditions. The work has just been completed and the preliminary report shows that, for the 1918 crop, the cost varied from $0.08 to $1.03 per pound. It is interesting to note that 85 per cent of the cotton on the farms studied, representing 66 per cent of the producers, was grown at a cost of 28 cents per pound or less. The average cost of production was 23 cents a pound. The average selling price was 29 cents, and even at this price one-fourth of the farmers produced their cotton at a loss. Owing to reduced yields and increased wages the cost of producing the 1919 crop has been considerably larger.

"Every cotton farmer ought to know what it costs him to grow a bale of cotton. Unless he knows, it is impossible for him to determine how to arrange his crops so that they will yield him the largest possible profit on his investment and his labor. The scientific manner in which these studies have been conducted makes them reliable, and they will form the basis upon which the individual can work out his own costs. Ascertaining cost of production has been one of the most difficult tasks that the department has had to perform and we believe that it will prove one of the most useful. The studies will be extended through the list of principal crops, but cotton was the first to be worked out, and the cotton grower, therefore, may be the first to avail himself of the benefits.

New Uses for Cotton

"I suspect that one of the big developments in the cotton industry in the immediate future is going to be along the line of new uses for the fiber. Some things that we did during the war indicate that cotton can perform more exacting duties than has been suspected heretofore. From the beginning of aviation down to the spring of 1917, nobody had ever demonstrated that airplane wings could be made of anything except

the best quality of linen. But when the Germans bottled up the Gulf of Riga, they had control of about 90 per cent of the world's flax, the plant from which linen is made. The Aircraft Production Board appealed to the cotton specialist of the Department of Agriculture to know if a substitute could be made from cotton. Some cotton mills in New England were turned over to the department. Within 60 days we had made a cotton substitute for linen in airplane wings and a million yards of it had been accepted by the War Department. Before the armistice was signed all the principal allies had begun the use of the cotton fabric and some had used it extensively. If cotton could perform that exacting war duty, there is no reason for doubting that it can perform equally exacting duties in time of peace."

PREVENT STINKING SMUT IN WHEAT

"Don't delay in treating spring wheat seed for stinking smut!"

This is the message of cereal specialists in the United States Department of Agriculture to spring wheat growers in the Northwest, where stinking smut or bunt of wheat is prevalent and annually causes great losses.

Stinking smut of wheat may be prevented readily by treating the seed with formaldehyde or with bluestone. Formaldehyde is very generally used in the region east of the Rocky Mountains. In the Pacific Coast States bluestone is more commonly employed, because it usually gives very much better results; this is doubtless because soil infestation occurs in that region.

The best method of applying the formaldehyde solution is by the so-called "dipping method," which is as follows: Prepare a solution of formaldehyde, using 1 pound to 40 gallons of water. Place some of the solution in a tub or barrel; pour the grain to be treated slowly into the solution, stirring thoroughly, so that the smut balls and trash may float to the surface and be skimmed off. Drain the solution off from the seed and pour it out in a pile and cover with sacks or canvas for 5 to 12 hours. Do not allow the seed to remain in the solution more than 10 minutes. Forty gallons of the solution is sufficient to treat 40 bushels of grain. After removing the covers from the grain spread it out to dry.

It is necessary to avoid contaminating the seed again. It must not be placed in smutty sacks, nor sown with a smutty drill. Sacks, bins, drill, etc., may be disinfected by washing thoroughly with a solution of formaldehyde of 1 pound to 10 gallons of water.

Sweet Clover Seed Screenings Fed In Proper Quantities Not Injurious

That sweet-clover seed screenings are not injurious when fed to stock in proper quantities is the conclusion justified by tests made by the Bureau of Animal Industry, United States Department of Agriculture. While it is recognized that an unqualified general statement should not be based on a few experiments, the results obtained by a limited number of tests tend to prove there is no ground for the fear, entertained by some, that sweet-clover seed is poisonous. Furthermore, the experiments indicate that sweet-clover seed screenings with hay can be fed to sheep to good advantage though perhaps they do not form as desirable a grain feed as bran. The experiments suggest that a larger use might be made of these screenings as a stock feed.

RIGHT AND WRONG WAY WITH ENSILAGE CORN

In many of the Northern States ensilage is the chief support of the dairies, and two kinds of corn are grown—a small variety for grain and a large variety for ensilage. That's right.

In many of these States the ensilage variety is not planted till after the planting of the small variety is finished. That's wrong.

The ensilage crop is usually wonderfully improved by being planted two or three weeks earlier than the small variety. By being planted before the days become long the ensilage varieties form much more grain and mature it very much better.—U. S. Department of Agriculture.

Results Obtained with Sheep

One of the tests consisted in feeding two sheep with screenings obtained from North Dakota. The screenings were composed largely of immature sweet-clover seeds, together with a small proportion of other seeds, fairly typical of screenings commonly used. Two other sheep in the same test were fed commercial screenings secured from a dealer in Salt Lake City. The average daily ration per 100 pounds of live weight of sheep, at the outset ranged from 1.06 to 1.79 pounds. This was the only feed given to the animals for a week, but the amount was gradually increased from day to day. All of the four sheep in this test lost weight, but this was attributed to the fact that at the beginning of the experiment the rations were insufficient to keep the animals in good condition, granting that sweet-clover seed was a good feed. There were no other indications of any injurious effect from this ration.

Screening Conformed with Bran

To determine what bad effects, if any, might follow the use of sweet-clover seed in addition to other feed, two sheep were given all the alfalfa hay they could eat, and in addition nearly 1 pound daily of sweet-clover screenings for each 100 pounds weight of each animal. One of these sheep increased from 101 to 103 pounds, and the other from 100.75 to 109 pounds. Two other sheep were fed in practically the same manner except that instead of sweet-clover seed screenings a small quantity of bran was substituted for hay. The weight gains of the two last-mentioned animals were not quite so large as the other two, but this was attributed to the smallness of the bran ration.

Further to test the relative value of bran and sweet-clover seed screenings as a grain ration, two sheep were given a ration of sreenings daily and two others were given a ration amounting to three-fourths of a pound of bran daily. All four of these animals were kept in a pasture during the day and received their respective grain rations at night. All of the sheep remained in good health during the experiment; those fed sweet-clover seed screenings did well so far as this experiment was concerned, although the weights at the end of the test, which lasted approximately six weeks, seemed to indicate that the bran was the better feed.

MACHINERY IN CORN PRODUCTION

Corn production averaged little more than 2 bushels per farmer's work day of 10 hours in the middle of the last century, when he husked and shelled by hand and turned the crank of a fodder cutter. The average rose to 14½ bushels half a century later when he used a gang plow, disk harrow, corn planter, self-binder for cutting, husker and fodder cutter, and a shelling machine, says the United States Department of Agriculture. Besides, there has been improvement in agriculture. If the corn was husked from standing stalks and these left in the field, and the corn was not shelled, the gain in production per day of farmer's labor was from 10 bushels in the earlier time to 26½ bushels in the later.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Regulating Live Stock Supply.

To regulate the supply of live stock according to the demand and keep an even flow onto the market is the one big problem of the farmers in Indiana and of States in the corn belt, according to the Indiana field agent of the United States Department of Agriculture. To accomplish this a schedule has been prepared by the field agent in cooperation with the Indiana Federation of Farmers' Associations, and a meeting of the organization will be held in every township in the State on March 31 to supply information to the officers of the federation. This will enable them to advise farmers in regard to their feeding plans for the future. The schedule asks for the numbers of cattle, sheep, and swine on farms January 1, 1920; the number of births and the number brought onto the farms during the quarter for feeding; the number sold, the number slaughtered, and the number of deaths on the farms during the quarter; the number of females on hand March 31 for breeding purposes and the number of all stock on hand for feeding; the number that will be finished during the succeeding 90 days, the approximate date they will be ready for market, and about the average weight per head.

At this time there are no statistical data available to the farmers that will enable them successfully to plan their feeding projects to avoid a glut on the market at certain periods, with reduction in prices. But with the information now to be gathered and tabulated in 10-day periods, by counties and shipping points, the officers of the federation can regulate the flow of meat animals to market to such an extent that farmers, when they buy their feeder stock, will be sure of a fair profit when it is fully finished and ready for the market. The lack of stability in the live-stock markets has caused the farmers to lose thousands of dollars, and every member of the organization is being urged to be present at his township meeting on March 31 and fill out a schedule for his farm. It is fully expected that 50,000 to 60,000 reports will be in the hands of the officers and tabulated by the middle of April.

Eighty-Seven Earthquakes in 1919.

Though the general public may not be aware of the fact, the United States usually experiences from 100 to 200 earthquakes each year. This is shown by reports sent to the Weather Bureau, United States Department of Agriculture, from the large number of stations which it maintains in various parts of the country and from its voluntary cooperators who send in notices of earthquakes observed in their respective localities. The number of disturbances last year was 87, and the number reported the previous year was 127. A very large proportion of these, of course, are so slight as to be entirely unnoticed by the public. On the Pacific coast slight earth tremors are of sufficient frequency to cause no comment whatever. The majority of quakes reported are from that region.

One surprising fact, however, shown by the summary of earthquake reports for 1919, which has recently been prepared, is that more than a score of these disturbances occurred in the Mississippi Valley. The region comprising southern Illinois, southern Indiana, western Kentucky, and western Tennessee experienced 20 quakes, while one was recorded in northeastern Missouri, two immediately south of Wichita, Kans., and one in Washington, D. C. Many disturbances in the total number reported would have wholly escaped attention but for the seismographs, which are so delicate that they usually will detect a violent shock, no matter in what part of the world it occurs.

Tick Work Active in Texas.

Big results in the work of eradicating the cattle fever tick are expected in Texas this year by officials of the Bureau of Animal Industry, United States Department of Agriculture, and reports from Texas indicate considerable ground for such expectations.

For instance, every quarantined county in zone 1, in the northern portion of the State, has made arrangements for the systematic dipping of cattle during the 1920 season, and the campaign is well under way in most of these sections. If the work goes along properly, all these counties—there are still 40 of them, largely because of excessive rains that impeded dipping last year—should be ready for release from quarantine next December.

Reports from zones 2 and 3, in the central and southern portions of the State, show that territory already won from the tick in Harris and other counties is being held, and that other counties are actively working, some of them in advance of the effective date of the State tick-eradication law. Counties in these zones where active work is going on are Austin, Montgomery, Hardin, Jefferson, Walker, Houston, Washington, Madison, Harris, Galveston, Liberty, and Brazos.

The cattle fever tick used to be generally known as the "Texas fever tick," but these facts indicate that the destructive parasite is losing its last claim to having its name linked up with the Lone Star State.

Larger Seed-Flax Acreage Needed.

Considerably more seed flax than usual should be planted this year, says the United States Department of Agriculture. At least 2,000,000 acres, the department believes, should be sown, almost wholly in the four principal flax-producing States—Minnesota, North Dakota, South Dakota, and Montana. Last year's acreage was only 1,683,000, and, owing to very unfavorable conditions, produced an extremely light yield of seed, only about 9,000,000 bushels.

The normal consumption of flaxseed in the United States for the manufacture of linseed oil and other products and for resowing is about 28,000,000 bushels a year. Average production for the past seven years has been less than half that much.

Because of the short supply and general high prices, together with high freight rates from Argentina, the price of flaxseed has been extremely high during the past year, ranging up to $6 a bushel. As a result, linseed oil has been so high that many owners of buildings have postponed painting that should have been done. Much of this delayed painting must be done in the near future, even though the price of linseed oil remains as high as at present. The construction of new buildings also will cause an increased demand, and more than the normal consumption of flaxseed may be expected within the next year.

Argentina is harvesting a large crop, and will have from 30,000,000 to 40,000,000 bushels of seed for export, much of which will be available for use in the United States; but ocean freight rates from Argentina apparently insure

a fair price for flaxseed grown in the United States.

The limiting factors, aside from the weather, in the sowing of flax this spring are likely to be seed supply and ability of farmers to finance sowing. The 1919 crop was of such poor quality that much of it is not fit for seed. Even where good seed was produced many farmers were forced to sell because of the failure of other crops. The available supply is short, therefore, and will be high in price. Some flaxseed can be obtained from northwest Canada, and will be entirely suitable for the flax-growing regions of the United States. It is not safe, the department warns, to sow Argentine seed.

Thorough preparation of the land and sowing under as favorable conditions as possible are highly desirable, in view of the high price of seed. The best date for seeding, generally speaking, is during the first half of May. On well-prepared land, under favorable conditions, 15 pounds of seed to the acre may be sufficient, so that, even though the seed is high in price, the acre cost is lower than for other small-grain crops.

Pure-Bred Sires Head Eight Classes.

The extent of live-stock operations and the wide range of stock kept on many farms are shown by figures received by the United States Department of Agriculture in connection with the nation-wide "Better Sires—Better Stock" campaign. Although this movement for live-stock betterment includes the eight principal classes of domestic animals raised in the United States, many farms keep all of them.

A farmer in Marion County, Fla., recently listed for enrollment pure-bred sires of the following kinds: Aberdeen-Angus bulls, Percheron and Saddle stallions, Mammoth jacks, Nubian billy goats, White Plymouth Rock cocks, and Bronze tom turkeys. In addition, he keeps pure-bred boars and rams. These pure-bred males were used as sires for 1,048 head of female stock, of which 358 were pure bred and the remainder grade. No scrub animals of any kind were kept.

Agricultural extension workers and county agents in Florida have been aggressive in replacing scrub live stock and especially inferior sires with animals of improved breeding.

"Mixed" Corn Brings Lower Price.

Farmers in the Southeastern States are losing money because so much of their shelled corn grades "mixed," according to reports received by the Bureau of Markets, United States Department of Agriculture. It grades "mixed" because of the large percentage of straw-colored kernels which it contains.

The demand in this section of the country is for white corn for making meal and grits, and millers will usually pay a premium to get it. To class as "white" under Federal standards corn must contain at least 98 per cent by weight of white kernels. More than 2 per cent of straw-colored, yellow, red, or any other color puts it in the "mixed" class.

If the corn is husked before shelling, ears containing colored kernels can be sorted out and used for feed on the farm. The best way, however, to have white corn for market is to plant only pure white seed.

Soaring Values of Plow Lands.

When farm plow lands increase in value per acre by one-fifth in one year and by one-half in four years, something has occurred that may be called a "phenomenon." These increases in value are indicated by the results of investigations by the Bureau of Crop Estimates. In March, 1916, plow lands in the United States had the average value of $58.39; in the same month in 1917 the average was $62.17; in 1918 it was $68.38; in 1919, $74.31; and at the same time of the year in 1920, $90.01, building values in all years not being included in the average.

The average value of 1920 is 54 per cent above that of 1916, 45 per cent above 1917, 32 per cent above 1918, and 21 per cent above 1919. Hence it appears that by far the greatest rate of yearly increase was from 1919 to 1920. To the extent that plow-land values are related to crop prices, this lag in the advance of land values behind the advance in crop prices is according to rule.

Values approximately doubled in the South in four years, and that is a part of the country where plow lands have low values. They are overtaking the higher values of other States. The least rates of advance in values are found in the New England and Middle Atlantic States. In the corn belt, where values are highest, the upward movement is strong.

Among the States that have high acre values for plow lands are Iowa with $219, Illinois with $170, California and Arizona with $130, Nebraska with $125, Indiana with $119, Washington with $115, Ohio and Idaho with $105, Utah with $103, and Wisconsin, Minnesota, and Oregon with $100. Irrigation has made high values possible for dry lands in Arizona and other States.

Plant Ensilage Corn Earlier.

Planting of ensilage corn last, instead of first, is an expensive mistake very generally made in the northern portions of the United States, according to specialists of the United States Department of Agriculture, who recommend that strong germinating seed of ensilage varieties from regions farther south be planted two or three weeks earlier than the home-grown seed which is planted for grain production. Such a planting program works to the decided benefit of dairymen and other growers of ensilage corn in the Northern States.

When large varieties of ensilage from as far south as Virginia or Missouri, for example, are planted in regions farther north late in May, they make a rapid, long-jointed, tender, succulent growth, and are so green when fall frosts come that they are heavy to handle, low in feeding value, and make ensilage which is sloppy and too sour. But when planted in April or very early May, they make a slower, hardier growth; they better withstand spring frosts and summer droughts, reach better maturity, and produce more grain than when planted later. Fall frosts, not spring frosts, are most to be feared.

Early-maturing, home-grown varieties do not need such early planting and will not be benefited in the way that large ensilage varieties are. The latter, though somewhat dwarfed by very early planting, make ample stalk growth and yield more and riper grain and make richer and sweeter ensilage. The early planting supplies the age necessary for maturing and reproduction. Reproduction is, in this case, grain production.

In growing ensilage crops in the North one should judge the crop by its feeding value, not by its height or weight or the amount of labor necessary to silo it.

Early cultivation pays, as it dries and warms the soil surface. If the soil remains wet, it stays cold and the young corn can not grow, whereas stirring causes the surface to dry rapidly, after which it will absorb heat and feel warm to the hand—a condition favorable to good growth.

The production of vegetables at home relieves transportation difficulties and solves the marketing problem.

It has been ascertained by the United States Department of Agriculture that in a region where, 80 years ago, the labor of a man for one day of 10 hours produced 45 pounds of cotton in the seed as an average for the season's work, he now produces 127 pounds of cotton in the seed, or nearly three times as much, per average day of work, the result of improved agricultural practice.

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Miss. C. M. Viehmann.
1 B-Z

Weekly News Letter

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LARGER ACREAGE OF FLAX THIS YEAR IS DESIRABLE.

Department of Agriculture Urges Northwest Farmers to Revise Plans.

Shortage of Linseed Oil Handicaps Building Operations—Indications Are That Price Will Remain High.

The flaxseed situation in the United States is more serious than ever before, according to an official statement from the United States Department of Agriculture. The crop is important on account of the principal products manufactured from flaxseed, which are linseed oil and linseed meal and cake. Linseed meal and cake are valuable stock feeds. Linseed oil is used chiefly in the manufacture of paints, varnishes, and linoleums. As no other oil can be substituted for it with satisfactory results, linseed oil is indispensable in all building operations.

Most of the world supply of flaxseed is produced in Argentina, Russia, India, United States, and Canada, of which countries all but the United States produce an exportable surplus. The surplus is consumed chiefly in Great Britain, Continental Europe, and the United States. In the United States more than 95 per cent of the crop is produced in four States—North Dakota, South Dakota, Minnesota, and Montana. Since 1909 the United States has depended on foreign countries, chiefly Canada and Argentina, for part of her flaxseed supply. This dependence on other countries has increased, as a result of the poor crops of the last few years, until now over two-thirds of our normal requirement must be supplied from abroad.

Strong Demand Will Continue.

An unprecedented demand for flaxseed exists, due to various causes at home and abroad. The price has advanced steadily each year since 1913, until it is now four times the prewar price. During this time the prices of wheat, oats, and barley have only about doubled. In spite of record high prices, Great Britain imported 22,877,000 bushels of flaxseed in 1919, more than she imported in the two previous years together. With the price of flaxseed in our markets well over $5 a bushel, Great Britain and Continental Europe, especially Holland, are still competing with the United States for Argentine seed.

Before the war we used about 28,000,000 bushels of flaxseed annually. During the war, on account of limited supplies and restricted building operations, the total consumption of flaxseed fell off several million bushels, in spite of an extra demand of about 5,000,000 bushels for war uses. This means an additional present demand carried over from previous years as a result of suspended building operations. Building permits in 193 cities during January, 1920, were more than five times those issued in the same month in 1919. This great building industry will have a marked effect in keeping up the demand for flaxseed.

Although an exceptionally large crop, estimated at 40,000,000 bushels, is now being harvested in Argentina, and favorable reports are being received on the

(*Continued on page 8.*)

POINTERS ON FLAX.

Why sow flax:
- Flaxseed is indispensable in all construction work.
- Supplies are low.
- Demand is great.
- Prices are high.
- Culture is simple.
- Profits are big.

Where to sow flax:
- New breaking or clean land in spring cereal grain States and northern winter grain States.

When to sow flax:
- Early (May 1–15) for best yields.
- Late (June 1–15) as a catch crop on late spring breaking.
- Any convenient time between these dates.

Other points:
- Get plenty of good seed now.
- Treat seed for wilt disease.
- Rate to sow, 1 bushel to 3 acres.
- Have firm, even seed bed.
- Use the same cultural methods and machinery as for a cereal grain.

HASTEN MATURITY OF PLANTS BY REGULATED LIGHT PERIOD.

Many Plants Can Not Mature Seed During Period of Long Days.

Scientists in Department of Agriculture Announce Discovery of Large Possibilities for Plant Breeders and Crop Specialists.

For generations scientists have known that sunlight was necessary for normal growth of most kinds of plants, and, although the summer sun might occasionally become too hot, they have understood that it could not cause any injury except perhaps the injury due to burning. A recent discovery by W. W. Garner and H. A. Allard, of the Bureau of Plant Industry, United States Department of Agriculture, shows that, entirely apart from any effect of burning, it is possible for plants to have too much daylight or, in other words, too many hours of daylight in comparison with the number of hours of darkness. Too long a day as well as too short a day will prevent many kinds of plants from ever reaching their stage of flowering and fruiting.

Controls Flowering and Fruiting Period.

Furthermore, the intensity of the light has very much less significance upon the growth of the plant than has usually been supposed. Greenhouse experiments prove that the flowering and fruiting period of practically any plant can be made to take place at any time of the year by darkening the greenhouse in the morning and evening if the day is too long, or by lengthening the day by artificial light if the day is too short. This new theory of controlling flowering and fruiting of plants undoubtedly will be used by florists and other greenhouse operators. For example, violets bloom only during the comparatively short days of spring; but if violet plants are covered with light-proof boxes at night and not uncovered until the sun is about half an hour high each morning during the summer time, violets can be forced to bloom again in the summer. Spring

flowers and spring crops happen to be spring flowers and spring crops because the days at the season of their flowering and fruiting have the proper number of hours of daylight. Correspondingly, the early summer flowers and crops must have a longer period of daylight. This has been proved as to a large number of plants, and the scientists believe that the principle will hold throughout the higher forms of plant life, and that it is probably applicable to animal life as well.

Reproduction Depends on Day Length.

The plant can not attain sexual reproduction, it has been shown, except when it is exposed to a favorable length of day. The requirements, however, differ widely with species and varieties. But a length of day that is unfavorable to reproduction may be favorable to growth. Under that condition the plant continues its vegetative development profusely and indefinitely without bearing fruit. A length of day may be found that is favorable both to sexual reproduction and vegetative growth. That tends to bring about the "ever-bearing" type of fruiting.

By employing dark chambers to shorten the period of light and artificial lights to extend it, scientists of the department have shortened or lengthened the life cycle of plants, have made some of them complete two cycles in a single season, have brought others into flower and fruit months in advance of their regular time and, with still others, have greatly delayed and even completely prevented fruiting.

Long series of tests have been made with soy beans, tobacco, wild aster, climbing hempweed, beans, ragweed, radish, carrot, lettuce, hibiscus, cabbage, violets, goldenrod, spinach, cosmos, iris, beggar-tick, buckwheat, and various other plants.

A test made with Biloxi soy beans will show how the principle works. For the test plants the day was shortened by several hours. That is, they were exposed to the light only from 10 o'clock in the morning till 3 o'clock in the afternoon. They were first placed in the dark house on May 20. Control plants, otherwise treated exactly like the test plants, were left exposed to the light from dawn till dark. The first blossoms appeared on the dark-house plants on June 16. No blossoms appeared until September 4 on the plants that were left in the light all day. But the dark-house plants averaged only 6 or 7 inches high, while the plants that were left in the light all day grew to an average height of 57 or 58 inches.

These plants required a short day and a long night for flowering and seed bearing. In tests with other plants, just the opposite was found to be true. The plants that were left in the light all day did not grow luxuriantly, but produced flowers and seed, while those that were kept in the dark a part of the day made abundant growth, but produced no seed or else were greatly retarded in producing seed.

Temperature Has Little Influence.

Temperature appeared to exert no influence in these tests. The results were the same, even when the temperature was higher in the dark house than on the outside. Another striking illustration of the relative unimportance of temperature is the fact that plants kept in the dark for a part of the day underwent, in midsummer, the changes that in nature come in the fall and have always been attributed to lower temperatures. This, also, was true even when the dark houses registered a higher temperature than that of the outside summer atmosphere.

The results obtained by artificially extending the period of light are just as interesting as those obtained by artificially shortening it. The artificial illumination, in a test with iris, was so arranged as to give 18 hours of continuous light in a greenhouse during the winter. Control plants were kept in a similar greenhouse with no artificial light. The test was begun on October 20, 1919. In the greenhouse where daylight was supplemented with electric light the plants made rapid growth, soon attained normal size, and produced blossoms on December 24. The plants in the greenhouse where no artificial light was used, though it was kept at the same temperature, remained practically dormant and showed no tendency to blossom as late as February 12, 1920.

Important Influence on Crop Yields.

The influence of this discovery on crop yields is likely to be of no little importance. The length of day is proved to be the most potent factor in determining the relative proportions between the vegetative and fruiting parts of many crop plants. Indeed, fruiting may be completely suppressed by a day either too long or too short. The advance in agricultural practice which may come through this new discovery will have to be brought about largely by plant breeders and other crop specialists. For instance, it will prove of material significance in the future planning of cropping systems for different regions, especially where consideration of new crops from different latitudes is necessary.

This new principle undoubtedly explains the erratic behavior which has been observed with many crops when they are shifted to different latitudes, and may also clear up the conflicting results of variety tests and field tests conducted with the same crops but in different regions. The experiments have shown, for instance, that ragweed requires for flowering a stimulus that is afforded by the shortening of the days and lengthening of the nights. It does not come into flower until the period of daylight falls below 15 hours. In the latitude of Washington that comes about July 1. But if ragweed seed should be taken to northern Maine and planted the plants would not experience a length of day below 15 hours until about August 1. Therefore they could not come into flower until after August 1 and, though the vegetative growth might be very rank, they could not mature seed before killing frosts intervened. The long days, therefore, make it impossible for ragweed to perpetuate itself in that latitude. On the other hand, plants that get their flowering stimulus from a long day could not perpetuate themselves through seed formation at the Equator, where the day never exceeds 12 hours.

Explains Luxuriant Growth in Northern Latitudes.

This principle affords the clue to the fact that many plants grow most luxuriantly near the northern limit of their range. The long northern day allows them to attain their maximum growth before the shorter day intervenes to check vegetative growth and start the reproductive process.

It may be found eventually, say the men who worked out the principle, that the animal organism also is capable of responding to the stimulus of certain day lengths. They believe that the migration of birds may be an illustration. Direct response to such a stimulus, they say, is more in line with modern teachings of biology than theories which assume that birds migrate as a matter of instinct.

Fresh vegetables for an average family may be grown upon a large back yard or city lot.

Tobacco exports from the United States per capita have persistently declined since 1790, says the United States Department of Agriculture. From that year to 1794 the average exports of domestic tobacco were 19.7 pounds per capita, and by 1845–1854 the average had fallen to 6.1 pounds. During 1875–1884 it was 4.9 pounds, and by 1905–1914 it had become 4.1 pounds.

Farmers Urged to Exercise Great Care In Selecting Alfalfa Seed This Year.

In view of the large importations of alfalfa seed which are arriving from Turkestan and other foreign countries, because of relatively small domestic supplies, the United States Department of Agriculture urges farmers to exercise great care in selecting alfalfa seed, since the difference between success and failure with alfalfa is often only a question of variety. The eastern farmer, particularly, will succeed better if he uses home-grown seed of good quality. But no matter in what part of the country he lives, the farmer should know what he is getting; and if he is purchasing commercial Turkestan alfalfa, quantities of which have recently been imported, he should have the advantage of a lower price.

Results of Tests Shown.

According to extensive tests made by the Federal Department of Agriculture commercial Turkestan alfalfa is less hardy in northern regions than varieties commonly grown there, and in the southern regions its yield is less than the varieties now commonly grown. For example, in the Great Plains region, south of southern Nebraska, local strains of common alfalfa produce larger hay yields than the commercial Turkestan, and in the extreme southern part of this region the Peruvian variety is far superior to it in point of yield. In the northern part of the Great Plains region, Grimm alfalfa is decidedly superior to the commercial Turkestan in hardiness, and both the Grimm and the northern-grown strains of the common variety exceed it in yields of hay.

Generally speaking, in the Northern States east of the Mississippi River the commercial Turkestan alfalfa is decidedly inferior to the Grimm, while in the central and south central portions of the territory east of the Mississippi it is inferior to the strains of common varieties such as are grown in Kansas and adjoining States, and is inferior to the Peruvian variety in the extreme South.

In the intermountain and irrigated sections of the West, local strains of common alfalfa are superior to commercial Turkestan, and in the extreme Southwest, in the Central Valley of California and on the Pacific coast, the Peruvian variety gives far larger yields of hay.

Commercial Turkestan alfalfa can be most easily recognized by the presence of Russian Knapweed seeds which are slightly larger than our alfalfa, chalky white in color, and slightly wedge-shaped, which distinguishes them from the notched seed of other species of knapweed. Every alfalfa purchaser is urged to supply himself with the department's bulletin on this subject. Its seed laboratories will be glad to inspect any samples which interested persons may send in for analysis.

Cause of Present High Prices.

The relatively small crop of alfalfa seed produced in the United States in 1919 is chiefly responsible for the present high prices that prevail and have stimulated importation. Since July 1, 1919, importations of alfalfa seed have amounted to upwards of 15,000,000 pounds, about one-fifth of which is of Turkestan origin. This seed is being advertised extensively and is being wholesaled at lower prices than domestic-grown seed. Commercial Turkestan alfalfa is generally characterized by a lower and somewhat more spreading habit of growth. It also has finer stems and slightly more hairy leaves. It is very difficult to distinguish individual plants of it from the domestic strains of common alfalfa, but in mass growth differences can usually be detected.

The Russian Knapweed seeds which help one to easily recognize commercial Turkestan alfalfa are believed to be always present in this imported seed and have not been found in commercial seed from other sources.

Alfalfa seed may be sent to any of the following seed-testing laboratories for identification: Seed laboratory, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C.; branch seed laboratories at Berkeley, Calif.; La Fayette, Ind.; Columbia, Mo.; Corvallis, Oreg.; College Station, Tex.

The revised edition of Farmers' Bulletin No. 757, "Commercial Varieties of Alfalfa," is now available for free distribution. The bulletin describes the characteristics of the kinds and varieties of alfalfa that are available commercially in the United States, and indicates clearly the section of the country to which each is adapted. Before making their purchases of alfalfa seed, farmers should write to the department for this publication.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended April 3, 1920:

Harlequin Cabbage Bug and Its Control. Farmers' Bulletin 1061.

California Oak Work. Farmers' Bulletin 1076.

Home Supplies Furnished by the Farm. Farmers' Bulletin 1082.

Control of American Foulbrood. Farmers' Bulletin 1084.

Beautifying the Farmstead. Farmers' Bulletin 1087.

Book-Lice or Psocids. Farmers' Bulletin 1104.

A Machine for Trimming Camphor Trees. Department Circular 78.

American Foulbrood. (Professional Paper) Department Bulletin 809.

A Pink Yeast Causing Spoilage in Oysters. (Professional Paper.) Department Bulletin 819.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention make your request definite by specifying the distinct class and number of publications desired, for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

SOUTHERN WOODLANDS.

A bulletin containing numerous illustrations has been prepared by forestry specialists of the United States Department of Agriculture for the benefit of southern farmers interested in making their woodlands more profitable. It contains suggestions regarding the marketing of many kinds of logs, and calls attention to the importance of wise cutting. The need of protecting seedlings in woodlands is emphasized, and the wasteful stripping of land, such as has laid bare so many slopes, is condemned. Photographs show the evil results that follow shortsighted practices.

This bulletin is entitled "Making Woodlands Profitable in the Southern States," and can be had free of charge by addressing the United States Department of Agriculture, Washington, D. C.

By means of a potato cutter, a potato planter, and a potato digger, along with other machines and a more intelligent agriculture, a farmer has been able to produce 57 bushels of potatoes with one average hour's labor. A half century ago the product was only one-third as much, says the United States Department of Agriculture.

Weekly News Letter

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Edwy B. Reid, Chief

OFFICE OF INFORMATION
Harlan Smith, Assistant in Charge

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

PORTO RICAN METHOD OF MOSAIC CONTROL APPROVED.

That the control measures recommended for use in the United States to combat the mosaic disease of sugar cane have proved their effectiveness from the growers' viewpoint on a large scale in Porto Rico is shown by a report recently issued by the insular experiment station of Porto Rico.

The control methods used on the island are described in Bulletin 829 of the United States Department of Agriculture; roguing (pulling out and destroying diseased plants) the fields early in the season, and selecting healthy seed in the fall. This fact is also of special interest to localities free of the disease since they should guard against the introduction of seed cane from diseased areas. The foothold this disease has gained in certain sections in the short time it has been present in America has not received the serious consideration from American planters which it deserves, it is said.

United States Department of Agriculture investigators strongly emphasize the need for the cooperation of American planters in stamping out this dangerous malady if cane-growing interests in this country are to escape the serious damage which the Porto Rico cane industry has experienced. The bulletin prepared by the United States Department of Agriculture describes the disease and suggests practical methods for its control; it can be had free by addressing the department at Washington.

The following information was requested in the questionnaire sent to all Porto Rican planters:

1. About what per cent of mosaic disease did you have in your fields last year when you began the work of eradication?

2. What steps have you taken to combat the disease either by seed selection or by pulling diseased canes both in plant cane and ratoons?

WILL NOT MODIFY ORCHID IMPORTATION QUARANTINE.

The Federal Horticultural Board has decided that no modification of Quarantine No. 37, with regard to orchid importation, is warranted at this time. As a result of a general discussion of the orchid situation in connection with the Detroit meeting of the Society of American Florists and Ornamental Horticulturists in August, 1919, it was suggested by the chairman of the Federal Horticultural Board that if those interested in orchids in the United States, both as to the importers and as to orchid growers or propagators, would endeavor to harmonize their interests, which seemed to be more or less conflicting, and present the board with a program which these interests had agreed upon as most desirable and necessary for the development of orchid production in this country, the board would be very glad to consider their recommendations, and if such recommendations seemed to be reasonable and well founded to put them into operation so far as might be practicable. An effort was made on the part of these interests to meet this requirement, but without much success. It seemed, nevertheless, desirable to give an opportunity for a full discussion of the subject, and therefore a conference was held at the Department of Agriculture February 10, 1920.

This conference brought together the principal orchid importers and orchid growers of the United States, and the needs of this industry from the production and other standpoints were fully discussed.

FEDERAL INSPECTORS WATCH "FAKE CURE" IMPORTATIONS.

That some of the old "sure cure" medicine fakes which have been driven out of business in this country have become established across the border in Canada and are attempting to do business, particularly through the mails, with such of the old victims as survived previous treatments and are still susceptible to the blandishments of alluring advertisements and labels, is the evidence secured by the United States Department of Agriculture. Federal drug inspectors of the Bureau of Chemistry have been instructed to watch proprietary medicines imported from Canada.

The Federal Food and Drugs Act applies to imported drugs as well as those of domestic manufacture. The law in some respects is more stringent in its application to imported than to domestic products. It provides that foods and drugs which are being imported into the United States or offered for import shall be refused admission into this country if adulterated or misbranded under the Federal Food and Drugs Act, or otherwise dangerous to the health of the people, if they are of a kind forbidden entry into, or forbidden to be sold or restricted in sale in, the country in which made or from which exported or otherwise falsely labeled in any respect. Already a number of shipments of proprietary medicines from Canada have been denied entry into this country, and all future shipments will be closely scrutinized to see that they comply with the Federal Food and Drugs Act.

The proprietary medicine manufacturer thrives on alluring claims as to the curative powers of his product, say the bureau officials. Preparations made of a few cheap ingredients with little or no therapeutic effect are labeled as "sure cures" for tuberculosis, kidney disease, scarlet fever, diphtheria, pneumonia, influenza, goiter, and a host of minor ills. The purchase of such worthless preparations is not only a waste of money, but the sufferers, relying on the false promises of benefit printed on the package or in the advertising literature, may experience material injury through failure promptly to institute proper treatment.

Officials will act in all cases, both imported and domestic, found to be in violation of the law.

INTERNAL REVENUE FROM TOBACCO.

The internal revenue from tobacco has always been much larger than the customs receipts, says the United States Department of Agriculture. In the first year's operation of the law, 1863, the internal revenue was $3,000,000, in the next year $9,000,000 and the amount increased to $31,000,000 by 1870, $41,000,000 by 1877, and $47,000,000 by 1882. After that year, the amount declined and remained relatively low until 1898, with a low-water mark of $26,000,000 in 1884. Suddenly, in 1899, the income jumped to $52,000,000 and the amount reached $71,000,000 in 1912, $85,000,000 in 1916, $102,000,000 in 1917, and $156,000,000 in 1918. The receipts of internal revenue and customs together produced $13,000,000 in 1865, $52,000,000 in 1897, $75,000,000 in 1909, $104,000,000 in 1913, $132,000,000 in 1917, and $178,000,000 in 1918.

Better Bulls Make County Famous—Market Extends to Distant States.

Who discovered Rowan County?

Was it the county agent, the State and Dairy Division field men, or the farmers themselves? All of these people had a hand in putting Rowan County on the cattle breeder's map. Here is how it happened.

In January, 1918, two field men representing the State of North Carolina and the Dairy Division of the United States Department of Agriculture, held a series of meetings in North Carolina, going out from the towns to the country schoolhouses and talking about bull associations. The county agent of Rowan County became interested, and an association was organized at Salisbury, with a progressive and practical farmer as president, for the purpose of purchasing and owning high quality, purebred Guernsey bulls in common.

That bull association has made Rowan County famous; and the fame is based on actual beneficial results. At the beginning there were only 15 purebred Guernseys in the whole county; now there are 209. Over $75,000 worth of purebreds were brought into the county in 20 months. The membership of the association has gradually enlarged until now there are members in every township of the county. Their number now is 219, and they own 670 cows. These men are not experienced breeders, but the breeding operations are guided by a man who is perhaps the most experienced breeder in the community. The assessment per cow was at first $5. It was thought advisable to raise this to $7.50, but before doing so the fact was made public that up to a certain date new members would be accepted at the old rate; and at that time 45 persons joined the association.

Inquiries for Stock Pour In.

Before the association was started Rowan County had no wide reputation; it had no special reputation at all; but very soon after the organization was formed it began to get inquiries for stock. These came from many parts of the country, and it kept the county agent busy to take care of the correspondence. As this took place before any attempt had been made to advertise, it was apparent that the association in itself had a strong advertising value. The breeders when working singly undoubtedly had good surplus stock for sale, but they found difficulty in selling, because they had only the local market; but the bull association opened up the whole country as a market.

The reputation made for the county reached distant States. Five graduates of the college of agriculture in Arkansas are making inquiries with a view to going to Rowan County to live, because they want to live and farm in this progressive locality. A number of soldiers returning from the war are looking to Rowan County as a good place to engage in dairy farming.

Getting After TB.

Tuberculosis, that bane of cattle raising, is being attacked in earnest. These farmers, with their fine stock and fine reputation, are not going to run the risk of losing both from this disease. Testing is going on according to the accredited herd plan, and the test for tuberculosis has been administered by the Federal authorities to 1,600 animals. That the disease has not gained a foothold in that region is shown by the fact that only a fraction of 1 per cent reacted.

Last fall the association members exhibited 106 head of purebred Guernseys at the Salisbury Fair. There were 16 heifers in one class. Breeders from various sections of the country who had herds of the same line of breeding as the herds in the association were invited to the fair.

Offered $15,000 for One Bull.

Among other visitors to the county was a prominent breeder from New York State, who was looking for a herd bull. He was interested in one of the association bulls, who was the son of a $20,000 bull, and who had himself sired a number of good heifers. None of these heifers had as yet made a record, but their conformation indicated that they were of excellent quality. The visitor saw the bull and his daughters, and finally offered $15,000 for him. The association members thought this was a pretty good offer, and were inclined to accept it; but the county agent remonstrated. "North Carolina," he said, "needs for its own use the very best breeding stock it can get, and we ought not to part with this excellent animal." The price, however, was so attractive that it was hard to hold them back.

The New York breeder wanted the bull, and finally succeeded in securing the use of the animal for two years for a payment of $1,000. In addition to this he gave the association the use of his own herd bull for two years, presented the association with two young bulls aged 7 and 18 months, respectively, and insured the association bull for 30 days, to cover the period of transportation. He will insure it again for the return trip at the end of two years. He also paid the expenses of a man to go with the bull and the cost of transportation of all four bulls. The association still has other good bulls, including one for which they refused $2,000.

This exchange is an extension of the principle of saving tested bulls and using them on other herds. If this principle could be fully applied by individual farmers working separately, it would serve the purpose; but it is too difficult for the individual to find other individuals with whom to exchange.

Then, again, buyers apparently have more confidence in breeders selling through an association. The association is known; it has its reputation to protect, and the stranger feels safe in buying stock through an organization.

Too Late—The Butcher Got Him.

The success of the Rowan County association in exchanging and marketing its tried bulls is in marked contrast with the common experience of breeders who send their good bulls to the block because they do not know how good a bull's daughters are until he is dead. The following is a typical instance of such a loss: The son of one of the greatest breeding bulls in the country, and out of one of the greatest breeding cows, was sold for a large price at a recent annual sale. Later, a prospective buyer who was looking for a good herd bull found that another son of this great breeding bull, and out of the dam of the great breeding cow—that is, out of the grandam of the bull mentioned before—had been sold to a farmer in Kansas. Because of the extraordinary breeding ability of the sire and dam of this second bull, it was thought that their son should also become a great sire, and the buyer approached the Kansas farmer, but found, alas, that the farmer had sold him, and the latest owner of this promising young bull was a butcher, who did with him as butchers do—and that was the end of the matter.

There are numberless instances of this sort, but they do not occur in bull associations.

Thousands of acres of idle land that may be used for gardens are still available within the boundaries of our large cities.

"BETTER SIRES—BETTER STOCK" GOES AHEAD.

SHORTEST "BETTER-SIRES" STATEMENT.

"Disposed of two cows and one bull: reason, scrubs."—Statement of L. S. Dryton, of North Carolina, to United States Department of Agriculture.

BETTER-BREEDING BARN CLEANING.

"I sold everything I had but one purebred sow, for the reason that they were not purebred." This statement accompanied enrollment in the "better-sires" campaign of A. M. White, a North Carolina farmer, explaining the small quantity of stock on hand at the time.

TWO HALFBREEDS FOR ONE PUREBRED.

After careful calculation W. T. Kilby, a North Carolina livestock owner, decided to sell two halfbred bulls and to replace them with one purebred. The United States Department of Agriculture, which recently enrolled this farmer in the "Better Sires—Better Stock" movement, approved his judgment.

PUREBREDS WITHIN SIX MONTHS.

"I am buying a purebred Duroc-Jersey boar and will have all purebred hogs on the farm within six months." This remark accompanied participation in the "Better Sires—Better Stock" campaign by George E. Mead, a live-stock owner in Escambia County, Fla. The value of purebred sires and better live stock so greatly exceeds that of inferior animals that often a mere suggestion is enough to bring about the change in progressive localities.

REGISTERED BULL REPLACES SCRUB.

"I disposed of one scrub bull and replaced him with a registered Holstein to build the herd up." This statement from a Virginia dairyman reflects sentiment for improving live stock in the Old Dominion State. The dairyman is enrolled in the "Better Sires—Better Stock" movement, in which Virginia now leads all other States from the standpoint of number of persons agreeing to use purebred sires for all classes of stock kept.

RIDS FARM OF ALL SCRUB SOWS.

Two purebred sires and 20 head of scrub female live stock were the property of a Florida farmer a short time ago. Not satisfied, however, with the quality of stock kept, he disposed of all his scrub sows, 9 in number. Likewise, he is incubating 50 eggs of standard-bred poultry as a basis for a well-bred flock to replace his scrubs.

These facts, reported to the United States Department of Agriculture in connection with the movement for better live stock indicate that progressive live-stock owners are not satisfied with the ownership of purebred males, but desire to improve the female stock as well.

"BETTER SIRES" FOR RABBITS.

The first person in the United States whose "live stock" consists entirely of rabbits and who applied for enrollment in the "Better Sires—Better Stock" movement, is Hamilton Coleman, of Bay County, Fla. Rabbits are not officially listed among the classes of animals for whose improvement the better-sires campaign is being conducted. However, in response to the spirit of cooperation shown and considering that the breeds of rabbits listed are raised for meat, the official emblem of recognition has been granted to Mr. Coleman. The rabbits listed included Flemish Giants, Spotted Giants, New Zealands, and Belgian hares.

"BETTER SIRES" LOCAL COLOR.

That the value of improved live stock is recognized by farmers even though they are still far from reaching that goal on their farms is shown by correspondence reaching the United States Department of Agriculture from regions where the live-stock industry is undeveloped. "This township," one farmer writes in pencil on a scrap of paper, "is interested in a better grade of cattle. There is a sawmill and a carriage shop and a blacksmith shop right by us, and I think these would be good places for your colored poster about better sires: If you will send me some I will post them up.

"We have several grade cows in our barn," he continues, "and will improve our cows with a purebred Holstein bull, which will soon be ready to head the herd."

He received the posters.

SIRE SERVICE FREE TO COMMUNITY.

In a Florida locality where little scrub bulls and boars roam at will along the roads, scattering parasites and disease, the leaven of live-stock improvement is at work. Having enrolled in the "Better Sires—Better Stock" movement, a stockman in that locality is now maintaining at considerable cost two registered bulls, a Holstein and an Angus, and two purebred boars, a Hampshire and a Duroc-Jersey. The services of all of these animals are free to the community.

"We feel we are doing something," this breeder informs the United States Department of Agriculture, "and the response to our offer of the free service of our purebred sires has been quite general. We have no ax to grind, as we do not sell breeding stock, though of course the time may come when we will have a surplus that must be disposed of. The farm is devoted to raising meat hogs, beef cattle, and dairy stock.

The benefit to the locality is not entirely in one direction, however, as the breeder himself states, since he is benefited also. Improvement of farm stock in the neighborhood helps to remove the danger which accompanies inferior animals ranging at will, spreading ticks, and infrequently breaking into pastures among purebred stock.

700,000 SPARROWS DESTROYED BY WINTER DRIVE IN UTAH.

Seven hundred thousand English sparrows, each eating six quarts of wheat a year, would mean a feed bill of more than $131,000. Therefore, the killing of 700,000 English sparrows means that amount of money saved for the farmers concerned. And nearly 700,000 sparrows were killed in a State-wide campaign in which 783 Utah farmers joined forces to get rid of the pests during the winter months.

County agents helped in the campaign, which used 5,243 pounds of poisoned bait. In most cases the bait was made of wheat, poisoned with strychnine in accordance with a recipe sent out by the Biological Survey of the United States Department of Agriculture. It was put up in one-quarter-pound paper bags in the county agent's office. Full instructions were printed on the bags for the use of the poison. Each cooperator receiving the bait agreed to report on the results. Usually the sparrows were enticed for a few days by putting unpoisoned bait in places not frequented by other birds and also inaccessible to the poultry of the farm. Then a few grains of poisoned wheat were put out each day. The dead sparrows were gathered up, counted, and either burned or buried every few days to prevent the sparrow population from becoming suspicious. The number of sparrows counted by each farmer was reported to the committeemen or the county agent at the end of the season's work.

As many as 240 dead sparrows were gathered up as the result of a single package of poisoned wheat. It is believed that where care was used in placing the poisoned bait an average of 75 sparrows were killed with each one-quarter-pound package. In each of several counties, 50,000 to 100,000 sparrows were destroyed.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Poultry Leads in Better Stock.

Unusual interest in systematic poultry improvement throughout the country is apparent from reports received by the United States Department of Agriculture in connection with the "Better Sires—Better Stock" campaign. Figures collected thus far indicate that more poultry is kept on farms in the United States than all other live stock combined, and that a greater proportion of the poultry is of pure blood than any other kind of live stock.

The records also refute the frequent assertion that most live-stock raisers take little interest in feathered stock, leaving it largely to the women.

A Connecticut farmer who recently enrolled in the "better-sires" movement is an example of the interest of men in improved poultry. He listed 30 cattle and 1,939 poultry—all of pure breeding. No other breeding stock was kept on the farm.

Farm Census Returns Important.

Realizing the importance to the farming industry of the agricultural census of 1920, the Secretary of Agriculture recently said in a letter to the Secretary of Commerce:

"Permit me to bring to your attention the vital importance of agricultural data collected by the Bureau of Census this year and the special interest of this department in having such data made available at the earliest practicable date.

"The United States Department of Agriculture, the State colleges of agriculture and experiment stations, the agricultural press, and organizations of farmers, as well as all agricultural and business interests generally, are interested in having the census data, with respect to acreage and production in crops in 1919 and the number of different classes of live stock in January, 1920, or at least State and United States totals available as early as practicable.

"These data are used as the basis for the monthly and annual crop and live-stock estimates of this department, which are of current value in the marketing and distribution of farm products. Because of the fact that crop and live stock estimates bridge the gap between the decennial census and because the estimates of acreage and live stock are made on the percentage basis, these estimates are liable to get out of line with the facts nearing the close of a 10-year period. It is highly important, therefore, that the results of the new census for agriculture shall be available for use by the department as early in the present year as possible, in order that the necessary corrections may be made in estimating this year's crops.

"In addition, may I also emphasize the importance of completing with the least possible delay the major tabulations dealing with land values, land utilization, tenancy, and farm population. Certainly information on these subjects would greatly assist the Department of Agriculture in its present work of attacking the problems confronting the Nation in the field of agriculture."

Navajo Indians Improve Live Stock.

More than 191,000 head of live stock owned by Navajo Indians in New Mexico henceforth will be bred only to purebred sires. The female stock includes 3,000 cattle, 8,000 horses, 150,000 sheep, and 30,000 goats, besides smaller numbers of swine and poultry.

The Indians have signified their support of the "Better Sires—Better Stock" movement. The United States Department of Agriculture is cooperating in supplying the Indians with literature dealing with live-stock improvement.

Uncle Sam Keeping Candy Pure.

Candy in interstate commerce, the United States Department of Agriculture tells the manufacturers, must be pure and must carry a label that tells the truth. The box or container that goes to the consumer should bear a conspicuous label showing the net weight. When the candy is put up under the name of the wholesaler or jobber, the name appearing on the label should be preceded by "manufactured for" or some such words, so that the purchaser may know that the name is not that of the manufacturer. Mixed candies labeled "fruit flavors" are misbranded if any artificial fruit flavors are used. The word "maple" or even the picture of a maple leaf must not appear on the label of confections in which no maple sugar or sirup is used. A false or misleading statement appearing on the label is not cured by a correct statement somewhere else on the label.

On the question of purity, harmless colors that do not conceal inferiority are permitted. The use of shellac and other gums for coating is prohibited. The department holds that saccharin is injurious to health and its use in candy is prohibited. Talc, terra alba, barytes, chrome yellow, alcohol, narcotic drugs, and mineral substances of all kinds are specifically forbidden in confectionery by the terms of the law. The use of cocoa dust in the manufacture of chocolate goods is held to be objectionable. A harmless mineral oil may be used as a slab dressing if used in such way that little or none of the oil is incorporated in the finished candy. Any of the decisions or opinions relating to the application of the Federal food and drugs act to confectionery may be obtained upon request from the Bureau of Chemistry, United States Department of Agriculture.

Testing Airplane Woods for Decay.

Now that the accidental breakage of airplanes is less than in the strenuous days of the war, the attention of the Forest Products Laboratory, maintained by the United States Department of Agriculture at Madison, Wis., has been called to instances in which airplane parts have had to be replaced because of decay. The fact is being recognized that many woods in common use for making aircraft are not sufficiently resistant. Fortunately, there are highly resistant woods whose value in aircraft has been demonstrated. One of these is Port Orford cedar. Others which tests in the laboratory have shown to be very resistant to decay are southern cypress and California redwood. Douglas fir, white oak, and black walnut also stand fairly high in durability. Spruce, which has been a favorite wood for aircraft, is appreciably less durable than the other species mentioned here. Likewise, basswood, beech, birch, and maple may be classed with less durable species.

Breeding for Better Furs.

The National Breeders and Fanciers' Association of America has indorsed the "Better Sires—Better Stock" movement. Through its secretary, the association has notified the United States Department of Agriculture of its aim, through better

sires, to improve the quality of fur-bearing animals raised in confinement.

In addition to raising animals kept primarily for fur, members of the association also breed such creatures as rabbits, cavies, and mice used for pets and scientific purposes. The value of purebred sires is especially great for classes of animals like those mentioned because of their prolificacy.

Live Stock Auctions Popular.

Selling live stock by auction, a plan started in Kern County, Calif., in 1917, has now spread through a considerable area of the interior of the State, especially where large numbers of hogs are grown. Last year seven counties—Kern, Kings, Merced, Madera, Stanislaus, Tulare, and Fresno—formed the California Farm Bureau Marketing Association and joined in conducting auction sales. This association employed a manager and assistant manager who were responsible for the success of the sales. In addition, each county farm bureau has a committee in charge of the sales locally. Auction sales were also held in San Joaquin and Shasta Counties. It is expected that this system will expand throughout the State during the coming year and that it will prove applicable to other products which are capable of standardization.

The business last year included 183 auction sales at which 543 carloads of live stock were sold for $1,790,330.79. It is estimated that the sales brought a direct increased return to the farmers of $166,946.97 over the prices the stock would have brought otherwise.

This is but one example of the help given by the county agent in organizing farmers for selling live stock. One hundred and three county agents in 19 States report this service as an important feature of the work last year. Furthermore, 133 county agents in 14 States report that they assisted in organizing live-stock shipping associations in their counties.

23½ Cattle, All Purebred.

A Connecticut live-stock owner, who recently enrolled in the "Better Sires—Better Stock" movement, reported 23½ cattle kept for breeding. Twenty-three of the animals are purebred cows; the remainder represents a half interest in a purebred bull. In addition, the stock of the farm includes a purebred stallion and 147 standard-bred fowls.

Although this live-stock owner is the first to report joint ownership in purebred sires on a fractional basis, there is a noticeable tendency among progressive breeders to acquire one-half, one-third, one-fourth, or other interest in purebred males.

The United States Department of Agriculture is placing emphasis on the use rather than the actual ownership of purebred sires. Part ownership in males of high quality is considered much more desirable than entire ownership of inferior sires. In fact, the "Better Sires—Better Stock" movement is aimed at the retirement from service of scrub and grade sires and likewise inferior purebreds.

Britons Buy Much American Honey.

American honey is becoming increasingly popular in Great Britain. On account of the shortage of sugar the English people have taken readily to its use, and it now seems probable that the demand will continue even after sugar again becomes plentiful. The clear, strained honey in the glass has the best sale, the preference being for California honeys, according to reports issued by Bureau of Markets, United States Department of Agriculture. In 1914 the total importations by the United Kingdom were approximately 2,600,000 pounds. By 1918 this had increased to 36,500,000 pounds, valued at $13,150,000. The United States contributed more to these totals in 1918 than any other country, its share being 16,000,000 pounds, valued at $5,500,000.

LARGER ACREAGE OF FLAX THIS YEAR IS DESIRABLE.

(Continued from page 1.)

winter flax crop in India, while possibly several million bushels may be exported from Russia, prices still continue above $5 a bushel. Prices quoted for May delivery are around $4.70 and for July delivery about $4.60. This indicates that the world supply now on hand can be absorbed without having much effect on present high prices.

Flax a Profitable Crop.

The United States production of 8,919,000 bushels in 1919 probably could be increased more than three times and still it would be necessary to import flaxseed. As flax is a frontier crop, doing best on virgin land, it is doubtful if our full annual requirement will again be produced in this country. As long as the United States must import part of her supply, prices will remain high and flax will be one of the most profitable crops in the sections adapted to its production.

The United States should produce most of its flaxseed requirements and would do so if it were not for the diminishing supply of new land, the weed problem, and flax diseases, especially flax wilt. Of course, with drought conditions such as have prevailed in Montana and western North Dakota during recent years, flax will fail like any other crop. The amount of suitable land still unbroken is diminishing every year, and eventually if flax is still grown it will have to be sown on old land.

When flax is sown on old land, two important factors operate against the success of the crop—weeds and disease. Flax is a poor weed fighter and may be choked out entirely by Russian thistles or other weeds so that it is impossible to harvest or thrash the crop. If flax must be sown on old weedy land, it should be sown early to get a good start ahead of the weeds.

How to Fight Flax Wilt.

If flax is grown on the same land several years in succession the wilt disease is likely to cut down the yield and may entirely destroy the crop. This disease may live in the soil for several years and may increase so that it will destroy an entire flax crop sown on the same land several years later. At Mandan, N. Dak., in 1919, whole rows of flax strains susceptible to wilt were destroyed by this disease when grown on land which had had no flax on it since 1914. Flax wilt often is bad in Minnesota and eastern North Dakota. It has not been reported in extreme western North Dakota or Montana, but possibly may occur.

A careful treatment of flaxseed by spraying with a solution made by mixing a pint of formaldehyde with 40 gallons of water will prevent the disease from getting into the soil.

Wilt-resistant varieties have been developed by Prof. H. L. Bolley, at the North Dakota experiment station. The one most widely distributed under the name North Dakota Resistant No. 52 is a good yielder on clean land, but can not be depended upon for great resistance to wilt where the soil is badly diseased. North Dakota Resistant No. 114, though a poorer yielder than some others on clean land, will make a crop on badly diseased soil if other conditions remain favorable.

Weeds and disease do not affect flax on new breaking, and good yields are to be expected under such conditions.

Bulletins giving all necessary information on the handling of the flax crop may be had by writing to the United States Department of Agriculture or to the agricultural experiment stations in Minnesota, North Dakota, South Dakota, and Montana.

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NO COTTON TO BE GROWN IN PINK BOLLWORM AREAS

State Officials of Texas Agree to Program of Department of Agriculture

Legislature Will Be Convened in May to Provide for Compensation of Planters—Louisiana Authorities Cooperate

As a result of the hearing conducted in Washington April 6 and 7 by the Federal Horticultural Board of the United States Department of Agriculture on account of the pink bollworm, and after consultation with the governor and other authorities and representatives of the State of Texas, and with official and other representatives of the State of Louisiana, the Federal Horticultural Board will recommend to the Secretary of Agriculture the following quarantine and restrictive action, to be enforced by these States in cooperation with this department, with the object of preventing the further spread and effecting the extermination of the pest. The prompt carrying out of these plans has been definitely promised by the official representatives of these States.

Action in Texas.

1. The State of Texas will establish and enforce a noncotton area covering the regulated zone now in effect in southeastern Texas, with certain additions to include new points of infestation which have been determined outside of the old quarantine line. This zone involves all or portions of the counties of Jefferson, Chambers, Galveston, Brazoria, Harris, Liberty, Fort Bend, Jasper, and Newton.

2. In addition to and surrounding this noncotton area, as a further factor of safety, the State of Texas will establish and enforce a regulated zone of 25 miles in width. The growth of cotton in such regulated zone will be permitted under the restriction that the crop shall be under the full control of the State authorities, in cooperation with the United States Department of Agriculture, for the purpose of enforcing any safeguards that shall be determined to be necessary.

3. The State of Texas will establish similar regulated zones of a 10-mile radius surrounding all oil mills in Texas which are known to have received seed during the last three years from the parishes in southwestern Louisiana now known to be invaded by this pest. Such points in Texas are now known to include Houston, San Antonio, San Marcos, and Snyder.

4. In addition it is understood and agreed that the State of Texas will maintain and continue the noncotton zone established for the last two years at Hearne, Tex., and the noncotton zone established for 1918, including the counties of Presidio and Brewster, in the Great Bend of the Rio Grande; and will continue the quarantine with respect to Valverde, Kinney, and Maverick Counties on the basis of a noncotton zone, extending inward five miles from the Mexican border of these counties and the inclusion in a regulated zone of the portion of these counties outside of such border zone in which all cotton produced will be under the control of the State authorities in cooperation with the United States Department of Agriculture as in the case of other regulated zones.

The Governor of Texas has agreed for the State to promulgate immediately the

(*Continued on page 8.*)

DEFEAT OF PINK BOLLWORM REQUIRES NONCOTTON ZONES.

The extermination of the pink bollworm in Texas and Louisiana is absolutely contingent on the prohibition of the growth of cotton in infested areas. The growth of cotton under restrictions or the adoption of other methods of control would simply mean the perhaps slower but no less certain ultimate spread of the pest. Extermination is possible only under present conditions—in other words, when the infestation is just beginning and when the insect is scanty in numbers and limited in distribution. Any postponement or limitation, therefore, of the effort at this time would mean practically the loss of the opportunity of extermination and acceptance of the ultimate spread of the pest throughout the South.—Secretary of Agriculture.

MORE CORN ROUGHAGE IN DAIRY RATION IMPORTANT

Specialists Find It To Be Big Factor in Profitable Feeding

Dairymen Should Grow More Corn Roughage and Less Nonleguminous Hay, says the Department

The feeding value of corn silage, corn fodder, and corn stover in the dairy ration is not sufficiently appreciated, especially if leguminous hay is not plentiful, says a specialist of the Dairy Division, United States Department of Agriculture. A recent study of records from cow-testing associations points to the conclusion that the growing of more corn roughage and less nonleguminous hay would increase the profitableness of the ration.

In all sections where legumes thrive it is, of course, advisable to grow them, as their value is well recognized for feeding dairy cattle. In fact, from a study of cow-testing association reports, it would seem that even grain does not fully take the place of good legume roughage. It is in those sections where feed is scarce or expensive that dairymen may well consider the growing of more corn roughage and less nonlegume hay.

Cattle Thrive on Corn Alone.

Few plants apparently contain all the substances required to nourish properly the animal body, but in the light of present knowledge the corn plant seems to be one of these. It is possible to balance a ration from corn products only that will enable the animals to thrive and reproduce with apparently no ill effects. This is not the case with many other crops. Corn, then, has unusual feeding properties.

Experimental work done at the South Carolina and Pennsylvania stations has shown that it is practical under some conditions to feed dairy cows on a ration of corn silage and grain without hay. Such a ration has been used successfully in

feeding beef steers. Reports from one cow-testing association show an unusually high income over cost of feed and large production per cow is in a district where the dairymen have practically discontinued the feeding of hay, but instead feed silage and corn fodder. In this association the grain ration is also composed largely of corn by-products.

More Corn Roughage—Less Nonlegume Hay.

No matter what other conclusions may be drawn from the evidence available showing the value of corn fodder and corn silage as dairy feeds, it seems certain that the corn plant provides an excellent roughage.

Hay is often damaged very much by becoming overripe. Storms damage it seriously. The feeding value of corn is not damaged by its becoming mature, and if it is properly shocked storms do little damage to it.

There are undoubtedly many dairymen who can well consider the wisdom of reducing the amount of nonleguminous hay produced, of increasing their pasture, and of growing more leguminous feed, corn fodder, and silage to feed their dairy cows.

WILD CUCUMBER VINES ARE MENACE TO PICKLE INDUSTRY

Wild cucumbers are a serious menace to pickle growing. That the eradication of this plant would reduce, if not entirely eliminate, the mosaic disease of cucumbers which in some sections has practically driven the pickling business out of existence, is shown by studies made in Wisconsin by United States Department of Agriculture scientists. Their investigations prove that the white pickle disease, or mosaic disease of cucumbers, also attacks the wild or four-seeded cucumber, a vine which occurs along streams and is used for ornamental purposes in many parts of the Middle West. Michigan, Indiana, Illinois, and Wisconsin, where this wild vine thrives, are the center of the pickle-growing industry in this country. The wild plant is a serious menace to the cultivated cucumber in these States because it is the principal, if not the only, means by which this disease is carried over from season to season.

Destroy Wild Cucumber Plants.

All persons in town and country in cucumber regions are urged by the United States Department of Agriculture to stop planting the wild cucumber and to pull up and destroy all wild cucumber plants found in their vicinity. It is pointed out that many other climbing vines, both annual and perennial, can well be substituted for the wild cucumber and do not harbor a disease injurious to the cultivated crop.

Coincident with the great abundance of wild cucumbers near towns, it has been observed that the white pickle disease of the cultivated cucumber is generally more abundant and severe near towns than in the open country. This is of importance not only to near-by farmers who grow pickles as a business, but to town gardeners as well who wish to grow a few cucumbers, muskmelons, or other vine crops for home use. The disease may attack any of these vines so severely as to kill the plant or prevent the production of any but warty and worthless fruits.

Smaller Dairymen Discover Value of Bull Association in Newer Dairy Sections

From Attala County, Miss., new evidence of the popularity of the bull association among farmers with small dairy herds has come to the attention of the Dairy Division, United States Department of Agriculture, through the announcement that a cooperative bull association has been organized in that community.

Dairying is almost a new venture with many of the farmers in Attala County. Perhaps it is this very newness and the consequent lack of prejudice in favor of old methods of doing things that has made it so comparatively easy to introduce this modern method of improving dairy cattle. Many of the dairymen in the community have shown themselves to be progressive, but one man especially stands out as a leader in this respect. We will call him Green. He is a good old southerner who is said to have farmed for some 60 years.

When the agricultural extension agents from the Federal and State departments came into the community to organize a bull association Green was the man they called on first. They knew from experience that he would be very likely to see the advantage of such an association to the community, and would be a strong factor in swinging into line other farmers in the neighborhood. As was expected, Green at once saw the advantages that the proposition offered, and the very next day he started on the preliminary work of organizing a bull association "block."

Quick Work With First Block.

A few days later the extension men heard over the telephone that a block was practically assured. Later, however, Green telephoned that some of the prospective members were dropping out, as they had remembered a disastrous experience of some years before, when they had paid a high price for a worthless stallion. This objection was met, however, with the assurance that the Federal and State agents were indorsing this project and would see that no one was swindled.

Later on Green informed the county agent that a block of 40 cows had been formed and could be signed up if the agent and specialist would come out to the schoolhouse and clear up certain doubtful points. This was done, and 6 farmers signed up 43 cows, so that $430 was then available for buying a bull.

Others Want to Get In.

Things were moving along in such a promising manner that the farmers who had refused to join decided that it would be a good thing to get into the association after all, and requested membership in this block.

"No, sir," said Green, who had been elected director of the block. "You had your chance and wouldn't come in. Organize a block of your own. We don't want you in ours."

With the arrival of the excellent Jersey bull, Oxford Mon Plaisir, 169738, which had been secured for the use of block members, the farmers who had at first refused to join the association were doubly anxious to get in, but were again told that they would have to organize a block of their own. Thus it appears that the doubting ones, who are found in every community, had to pay the penalty of hesitating. While they may still get into the association and enjoy its benefits by organizing a new block, they have lost a great deal of time.

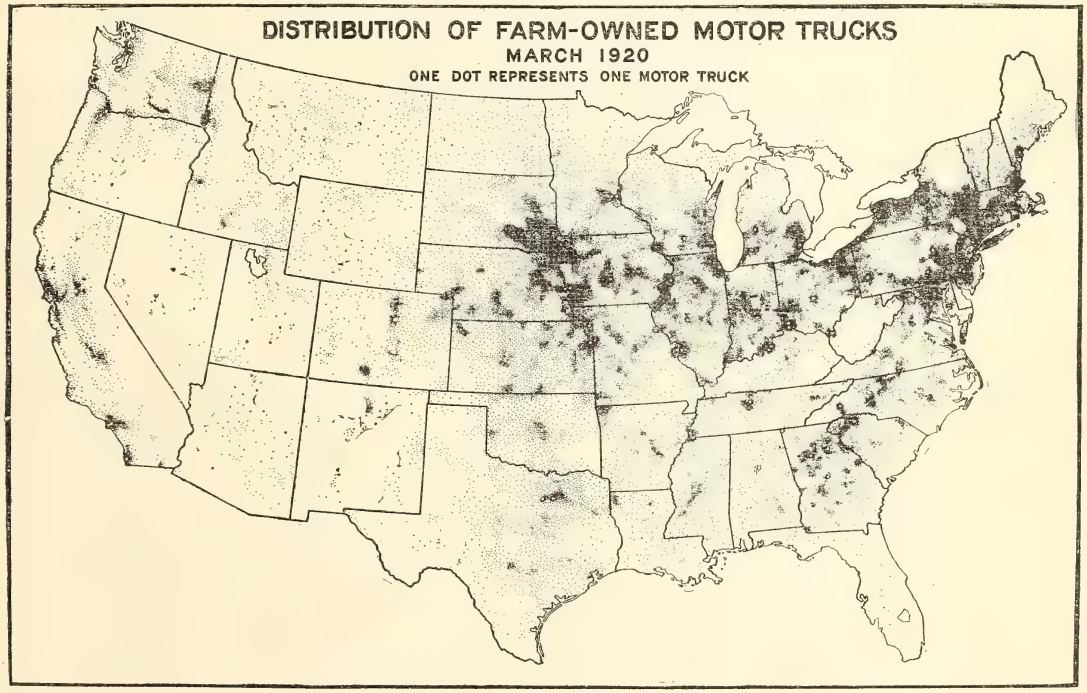
PRIMITIVE VS. MODERN HAY MAKING

A farmer's work in hay harvest in 1850 resulted in stowing in the barn about one-half ton per day of 10 hours. The efficiency of the farmer's labor was multiplied by five half a century later and he had about 2½ tons to show for his day's work. This measures the difference between primitive and improved methods and machinery, the United States Department of Agriculture points out.

Distribution of Farm-Owned Trucks Shown by Data from Crop Reporters

The accompanying map shows the distribution of motor trucks owned by farmers, as determined by reports received by the Office of Farm Management, United States Department of Agriculture, from approximately 35,000 crop reporters of the Bureau of Crop Estimates. The names of about 50,000 farmers in the country who own and use motor trucks on their farms were returned by the crop reporters. Each dot on the map represents one farm-owned motor truck.

It should be understood that only trucks owned by farmers and used primarily for their own hauling are represented here. In some sections more hauling of agricultural products is done with trucks owned by men who live in towns and who haul for hire than is done with trucks owned by farmers.



Many Farmers Hire Trucks.

As an example, only 10 motor trucks owned by farmers were reported from one county in central Indiana. The crop reporter for one township in this county said: "I only know one farmer who owns a truck. Produce often goes to market in trucks hired for the occasion from truck owners who make a business of hauling."

The reporter from another township in the same county said: "There are 25 or more trucks in the township which do general hauling, mostly live stock to Indianapolis and merchandise to the various towns. The trucks are mostly owned by men in the small towns, but a few small farmers also own trucks and do custom hauling as a side line."

Rural Motor-Express Routes.

One reporter from a neighboring county in Indiana, for which 29 farm-owned trucks were reported, said: "There is not a motor truck in my territory owned by a farmer. When farmers have stock or grain to haul to market they hire city men who own trucks to haul it for them. These men charge 55 cents per 100 pounds for hauling stock to the city, 40 miles distant."

Reporters in dairy regions frequently reported that milk is hauled in trucks owned by the milk companies or private individuals—each truck covering a fixed route each day and hauling the milk for all the farmers on the route. A certain amount of farm products is also transported over regularly established rural motor express routes, but no attempt was made in this investigation to determine the number of such routes in operation or the amount of produce transported by them.

Copies of this map, suitable for reproduction, can be obtained on request to the United States Department of Agriculture, Washington, D. C.

IT'S "MILK COW;" NOT "MILCH COW."

Hereafter it will be "milk cow" and not "milch cow"—at least so far as the U. S. Department of Agriculture is concerned.

This decision marks the termination of a controversy in which etymologists in the department have had not a little interest. Those defending "milch" have pointed to scriptural use and certain of the classics as establishing precedents, while the opposition has contended that dairymen, ranchmen, and farmers in general use "milk" instead of "milch" almost universally. The advocates of "milk" also favored that word because, they contended, it was more strictly an English word, while "milch" was akin to German. Since Americanization of language as well as ideals is an article in every patriot's creed, it is thought that this last sally of the "milk" defenders helped as much as any to decide the question in their favor.

Milking Tests Given under Conditions Making Calculation of Nutrients Possible

Feed and production records, which should be of interest on account of the accuracy with which the nutrients fed could be calculated, were obtained during the past year on seven Holstein-Friesian cows at the Beltsville (Md.) experiment farm of the Dairy Division, United States Department of Agriculture. These cows, which are a part of the foundation herd used in a line-breeding and inbreeding project in charge of R. R. Graves, have now completed their first semiofficial yearly test as heifers, and in accordance with the plan of the breeding work they will be tested later on as mature cows.

Accurate Records Available.

The cows are fed in such manner as to show their producing capacity, though no attempt was made to force them to extremes. The animals were not run on pasture, and did not receive any green feed during their lactation period. Consequently full and accurate records of all nutrients consumed are available. All of these cows were milked three times a day throughout the year's work. All test animals are handled under as uniform conditions as possible, in order that the records of the next generation, when made under the same conditions, may be comparable. The names and herd numbers of the animals that completed their records are: No. 228, Gerben Queen Segis Cornucopia, 294761; No. 227, Beauty Korndyke Gerben, 288919; No. 229, Mercedes Laura Ollie, 307236; No. 230, Watson Segis Pontiac Homestead, 316969; No. 231, Lone Star Pontiac Segis 2d, 323757; No. 214, Lady Colantha Walker, 365573; No. 225, Lone Star Pontiac Segis, 239068.

Cows 228 and 227 are daughters of Hazelwood Korndyke Gerben, 98063. Cows 229, 230, and 231 are daughters of Piebe Laura Ollie Homestead King, 110474. No. 214 is a daughter of Johan Woodcrest Lad 11th, 103987, and was bred at Beltsville. No. 225 is a daughter of King Segis Pontiac Count, 93909.

All the animals in this list, with the exception of No. 214, were shipped from Minneapolis on March 22, 1918, arriving at Beltsville on April 1. With the exception of No. 229, there was no time for any special fitting, and in fact all were in ordinary condition at time of calving. No. 228 freshened April 4, No. 231 freshened April 10, Nos. 230 and 227 freshened April 18, No. 225 freshened April 29, and No. 229 freshened May 28. The following table gives a summary of the production and feed consumption, also the age of the animals at the time the test was started:

SUMMARY OF FEED AND PRODUCTION RECORDS FOR ONE YEAR FOR 7 HOLSTEIN COWS

Herd No.	Age test started.	Milk produced.	Fat.	Fat produced.	Feed consumed.					
					Grain.	Beet pulp.	Alfalfa hay.	Molasses.	Corn silage.	Nutritive ratio of ration.
		Pounds.	*Per ct.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	
230...	2 years 1 month 21 days...	20,352.1	3.29	671.505	6,468	2,033	4,462	146	8,902	1:4.2
229...	2 years 6 months 20 days..	20,063.7	3.11	625.9	5,581	2,251	4,336	182	8,196	1:4.3
228...	2 years 7 months.....	15,001.1	3.24	486.133	5,543	1,692	4,344	132	9,394	1:4.2
227...	2 years 8 months 16 days..	17,753.0	3.49	619.37	5,803	1,912	4,340	143	8,822	1:4.2
225...	4 years 2 months 12 days..	21,455.3	3.16	679.99	6,613	2,410	4,466	159	8,315	1:4.2
231...	2 years 26 days.....	16,670.7	2.98	498.33	5,399	1,781	4,374	136	8,333	1:4.2
214...	2 years 2 months.....	17,843.7	3.06	546.85	5,991	1,886	4,336	182	8,758	1:4.2

Herd No.	Age test started.	Digestible nutrients per 1,000 pounds milk.	Digestible nutrients per 100 pounds fat.	Digestible nutrients per 100 pounds total solids.	Total digestible nutrients consumed.
		Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
230...	2 years 1 month 21 days.....	502.8	1,525.0	422.5	10,233.1
229...	2 years 6 months 20 days.....	477.5	1,532.6	396.4	9,578.9
228...	2 years 7 months.....	621.1	1,917.0	517.6	9,316.7
227...	2 years 8 months 16 days.....	539.4	1,547.0	435.0	9,576.03
225...	4 years 2 months 12 days.....	490.8	1,548.4	427.1	10,529.1
231...	2 years 26 days.....	546.3	1,828.9	479.3	9,108.3
214...	2 years 2 months.....	543.9	1,777.2	460.9	9,703.6

The grain mixture that was fed to these cows was made up of the following feeds, by weight:

	Parts.
Corn meal	2
Gluten feed	2
Wheat bran	2
Oats	3
Dried brewers' grains	2
Cottonseed meal	2
Linseed oil meal	3

Molasses was fed at the rate of 0.6 pound per day after December 1, 1918. The dried beet pulp was fed after being soaked in water. It should be borne in mind that these cows were not fed from the viewpoint of economy of production, but rather to ascertain their producing capacity.

It will be noted that there is a considerable difference in the amount of total digestible nutrients consumed per 1,000 pounds of milk produced, per 100 pounds of fat produced, and per 100 pounds of solids produced.

There was very little difference in the size of cows 231 and 214, yet No. 214 produced 1,173 pounds more milk and 48 pounds more fat than did No. 231, and consumed slightly less digestible nutrients per 1,000 pounds milk and per 100 pounds fat produced.

Troubles Suffered by Cows.

All the cows shipped from Minneapolis suffered severely from heat during their first summer at Beltsville, Md. No. 228 was troubled some with foot rot, and was also used in a water experiment from November 5 to March 28. No. 227 was troubled for some six weeks following her freshening by an obstruction in one teat. No. 231 was off feed at two different times as a result of bloating from alfalfa hay. No. 229 was very sick in December of her test from compaction followed by a slight case of pneumonia, and lost considerable weight during her illness.

All of these animals made considerable gains in weight during their tests. Undoubtedly a part of the surplus digestible nutrients consumed over the amounts required for production and maintenance were used for this growth and gain in weight. The surplus of digestible protein consumed was much greater than the surplus of total digestible nutrients. Men who feed cattle for large production have long thought that the narrower ration acted as a stimulus to greater production. From the standpoint of economy the narrower ration is no more costly than a wider ration at present prices of feeds.

Paths and roads about the farmstead not only should be as few as possible but should be kept out of sight so far as feasible, say specialists of the United States Department of Agriculture.

Fresh Home-Grown Raspberries All Summer By Planting Fall-Fruiting Varieties

Fresh home-grown raspberries all summer long and until frost comes in the fall. That is the delightful prospect which the United States Department of Agriculture holds out to the gardener who will plant one or more of the autumn-fruiting varieties of raspberry plants which it recommends. The department points out that European gardeners have grown autumn-fruiting varieties for many years, and some of them are of highest quality. It is particularly important that the American gardener secure varieties that will survive in this country, since in many sections our climate is too severe for the European varieties.

American Autumn Fruiting Raspberries

Two good autumn-fruiting varieties, the Ranere (St. Regis) and Erskine (Erskine Park) have originated in the United States and are now in the nursery trade. The Ranere was found near Hammonton, N. J., and was grown by the hundreds of acres on the sandy soils of southern New Jersey before being introduced into the trade. It is the principal commercial raspberry of New Jersey, and seems destined to become the leading sort along the Atlantic Coast States as far south as southern Georgia. The variety may be found fruiting freely throughout the fall months in Atlanta, Ga., and even farther south where other varieties do not succeed.

In the cooler parts of the Northern States, the Ranere produces fruit of too small size and of too poor dessert quality to be of great value. However, the berries borne on the young shoots in the autumn are larger in size and better in quality than those of early summer, and if pruned after the English system, where all the old canes are cut out in late autumn or early spring, it should be desirable in many northern gardens.

The Erskine raspberry, which was found a resident of Lee, Mass., in a patch of the Marlboro, bears larger fruit than the Ranere. The fruit is also of better quality, and if it proves as hardy and bears as well throughout the Northern States as it has under the care of the one who discovered it, it should be especially desirable. The Erskine seems to be a hybrid between the American and European red raspberries, and should be tried wherever the Cuthbert and Marlboro succeed.

Varieties from European Countries

Among the varieties of autumn-fruiting raspberries grown in England are Alexandra, Belle de Fontenay, Hailsham, Merville de Rouge, November Abundance, October Red, October Yellow, Semper Fidelis, Surprise d'Automne, and Yellow Four Seasons. Only two of these sorts, the Belle de Fontenay and the Hailsham, are in the nursery trade in this country.

Two other European fall-fruiting sorts, which may perhaps be found in England, are in the nursery trade in this country, the La France and the Souvenir de Desire Bruneau. The La France has been grown in gardens in Connecticut for many years without a name, but has now been introduced under this name. Some winters it may survive without injury, but in other winters the canes kill back to the ground. The Souvenir de Desire Bruneau is of recent introduction.

The experience of American fruit growers of the Eastern United States for the last hundred years has been that no variety of raspberry introduced from Europe succeeds in Eastern United States as a commercial sort. Introductions of European varieties have been made repeatedly, but none of them have yet succeeded under the rigorous eastern climate. Those who try these autumn-fruiting European varieties, therefore, should not expect them to be of value, except in the home garden. There, however, some of the hardier of these varieties may prove desirable. By removing most of the old canes and cutting those that remain to within 1 or 2 feet of the ground in late autumn or early spring a considerable quantity of fine quality raspberries may be secured. The berries borne on the canes which are cut back will come after the season of the common sorts, and should last until the new shoots begin to bear.

European varieties are more likely to succeed in the mild humid sections of Oregon and Washington where the climate more nearly resembles that of parts of Europe than does that of the Eastern States. Those interested in this group of raspberries probably will want to try the European sorts.

SOIL-BUILDING POWER OF TREES

Certain kinds of trees, like the locust and the acacias, build up poor soil through the nitrogen-gathering bacteria in the root nodules, according to the Forest Service, United States Department of Agriculture. The soil-building power of trees on slopes is a fact which the farmer should not overlook. Steep lands, which have been cleared of timber at much expense, after being cultivated for a few years, often become gullied, and the rich lands adjoining are covered with deep deposits of sand. The surest and cheapest method of protecting such slopes is to maintain forests on them.

Small gullies can be stopped up by closely packed brush and tree tops, anchored by stakes if necessary. Large, open gullies are checked successfully only by planting over the entire gully basin, supplemented by low brush dams across the larger units of the gully.

CANNING-HOUSE TOMATO SEED DANGEROUS FOR PLANTING

Canning-house-run tomato seed should be avoided as it is usually made up of a mixture of strains and varieties and is likely to carry disease germs and produce an inferior yield and quality of fruit.

Whenever possible, seed should be bought from selected stock of the variety best adapted to the locality in which the crop is to be grown. Few canning companies have given sufficient attention to this phase of the work to be able to supply such seed. United States Department of Agriculture specialists say it would be wise for the canners to make a specialty of the saving of high-grade seed.

The commercial production of high-grade seed requires the supervision of a man trained in the principles and skilled in the methods of breeding and of seed saving. As careful work of this kind is done chiefly by reputable seedsmen their seed is much better than that saved and offered for sale at canning houses.

Crossing of tomatoes, such as naturally occurs in fields of plants grown from the mixed seed from canneries, brings out in the crop many qualities that do not usually appear in the parent varieties.

These are chiefly small and rough fruit, pale flesh and pulp, thin walls and partitions, and low percentage of solids. Although not all these characters occur, as a rule, in the same fruit, some of them occur in so many fruits that they reduce the yield and quality of the crop.

Land adjoining some canning houses where refuse from wilt-infected tomatoes has been dumped has become so full of the wilt-producing fungus that a crop of tomatoes can not be grown on it. Seed saved from such tomatoes would not only cary disease but it would also mix with seed from good tomatoes. Moreover, disease-bearing particles from the wilt-infected tomatoes would adhere to good seed. Both the diseased seed and the seed carrying disease germs on its surface would carry disease into the seed bed and field.

This method of distributing disease organisms to seed in the canning house is not limited to the wilt disease.

Weekly News Letter

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HOW HOME-GROWN SUPPLIES CUT FARMERS' COST OF LIVING

Why can the farmer continue in business when the financial summary of his operations shows, at the end of the year, a margin of profit so small as to be insufficient to support his family?

It is because of the food, fuel, and shelter furnished the family by the farm. "These contributions," says the United States Department of Agriculture, "are not a cash receipt from the farm business, but they enable the farmer to reduce materially the cash cost of living." So far as food, fuel, and shelter are concerned two-thirds of the farmer's living is furnished directly by the farm. The food retained for family use may be raised especially for the family or may be taken from the regular farm products raised for market. No farm plan seems complete without its family garden. A part of the day's supply of milk and a part of the day's collection of eggs is used in preparing meals for the family. Similarly, other food products are diverted to the pantry, cellar, or smokehouse, instead of being sent to town to be sold. The farm wood lot, condemned fruit trees, discarded fence rails and posts, and pruning wood furnish fuel for cooking and heating.

These perquisites are not furnished altogether free of cost to the farmer. They represent labor and invested capital. Much of the labor, however, is performed at times when the work of the main farm business is not very pressing, and frequently a considerable part of it is done by women or children. Thus the actual money cost of these things to the farmer is insignificant or at most is considerably less than it would be if they were bought.

Pictures and descriptions of important methods followed by farmers in utilizing the food, fuel, shelter, and other things that the farm furnishes free of money cost are published by the United States Department of Agriculture in Farmers' Bulletin 1082, Home Supplies Furnished by the Farm. Copies may be had free from the Division of Publications, United States Department of Agriculture.

CHEAPER JELLY POSSIBLE BY USING GRAPE BY-PRODUCTS

Jelly made from grape pomace is a new product of the grape-juice industry. Pomace consists of the skins, pulp, and seeds left in the presses after the grapes are crushed for grape juice and has been heretofore almost entirely a waste product. The United States Department of Agriculture, with the cooperation of a large producer of grape juice in the State of New York, has completed experiments showing that jelly can be made from pomace with very little expense for materials except sugar. The presses, cooking kettles, and other food-packing machinery required are already in most of the plants.

The price of grape jelly as now produced is about twice that of apple jelly. If the waste were utilized, jelly could probably be produced at about the same cost as from apples. Enough grape pomace is produced in New York and Michigan each year to make more than 20,000,000 eight-ounce glasses of jelly, it is estimated.

The method of making this jelly does not differ much from ordinary packing-house procedure. It consists in boiling the pomace with water for about 15 minutes, pressing, adjusting the acidity by the addition of tartaric acid, standardizing the juice by concentrating it to the required volume, adding certain quantities of sugar, and concentrating to 222–223° F. The jelly has a strong grape flavor and looks very much like the product from whole fresh grapes.

In commercial application of the method, it is suggested that the wet pomace be freed from moisture in rotary driers and placed in bags for winter use. Drying does not seem to impair the jellification qualities, and it preserves the product for working up in winter when the burden of the grape-juice pressing season is over. This would result in keeping the machinery at work during a greater part of the year and distributing the overhead costs.

Under these conditions it will be profitable, also, to separate the seed and market it for its oil value. Under old methods, the operating and assembling charges were too great for the comparatively small amounts of seed produced, but by using the pomace for jelly a large part of the handling cost is removed from the grape-seed charges. The oil content of grape seed is comparatively small and it should be recovered by solvent extraction rather than by pressing or expelling. The product is a very light-colored, palatable oil and suitable to all purposes for which table oils are used.

Jelly made from grape pomace should not be labeled "Grape jelly." The label should plainly indicate the origin and should show the percentage of added tartaric acid.

QUARANTINE PLACED AGAINST FRUIT STOCKS FROM ORIENT

The Secretary of Agriculture has issued a quarantine, effective June 1, prohibiting the importation of fruit stocks, cuttings, scions, and buds from Asia, Japan, the Philippine Islands, and Oceania. This quarantine was issued in response to a hearing held at the department in Washington, March 9, and is for the purpose of excluding from the United States diseases and insects which are known to infest such materials in various oriental countries. These pests include cankers, blister blights, and rusts, the oriental fruit moth, the pear fruit borer, and the apple moth.

This quarantine has very little commercial significance, as the importations involved are limited in quantity and of minor importance. Such imported fruit stocks and cuttings have hitherto come chiefly from France or other European countries, and only recently have some requests for permits for the importation of such stock from Japan been received.

Enough is known of the insects and diseases which attack such trees in the Orient to indicate the extreme undesirability of opening up general commercial importation of such articles. Furthermore, no adequate survey of these countries has been made, and the diseases which are not known probably out number those which are known. It will still be possible under quarantine No. 37, to which this action is an amendment, to import the articles prohibited through the agency of the Department of Agriculture and under full departmental disinfection and control to meet all legitimate needs for the introduction of any new varieties or strains of necessary stock which would otherwise not be available for horticulturists in this country.

Destruction of Ripe Olives Ordered— Defective Packing Methods Blamed

A shipment of ripe olives rendered poisonous by bacteria which was seized in Milwaukee, Wis., on information furnished by the Bureau of Chemistry, United States Department of Agriculture, has been condemned and destroyed by order of the court, according to a statement issued by officials of that bureau charged with the enforcement of the Federal food and drugs act. The olives were in glass containers and labeled as "Supreme Curtis Quality California Ripe Olives packed by the Curtis Corporation, Long Beach, California."

The Government alleged in the libel that the olives were adulterated for the reason that they consisted in whole or in part of a filthy, decomposed, and putrid vegetable substance. Examination by the Bureau of Chemistry of samples from the shipment showed that guinea pigs fed from three of the bottles died, indicating the presence of toxin due to decomposition of the olives by bacteria which were later identified as *Bacillus botulinus*. Olives similarly infected were responsible for the deaths of several people within recent months in Canton, Detroit, Brooklyn, Memphis, and elsewhere.

Defective Methods Responsible.

Investigations by the Bureau of Chemistry have shown that defects in the methods of pickling, packing, and processing ripe olives are responsible for widespread infection with bacteria. The practice of shipping and holding olives in weak brine for weeks, and sometimes for months, permits fermentation and generalized infection of the olives with many kinds of bacteria. Olives after this treatment are much more difficult to sterilize than those fresh from the tree and handled at once. As a result, there is occasional failure on the part of the packer to heat the containers to a sufficiently high temperature to destroy all dangerous bacteria that may be on the olives.

The failure to sterilize properly is more likely to occur when glass containers are used, probably because of the fear that a higher temperature may break the glass. There is no good reason why ripe olives should not be completely sterilized when put up in glass as well as when put up in tin. As a matter of fact, however, ripe olives in glass have been the cause of the various cases of botulinus poisoning investigated by the Bureau of Chemistry. The only case in which a tin container appears to have been involved was that of a relish containing minced ripe olives where condiments rather than sterilization were depended upon for preservation. The poison would develop in tin containers if they were not sufficiently processed, but as there is no danger of breakage in tin, a sufficient degree of heat is usually applied.

In all cases of botulinus poisoning so far investigated the ripe olives were found to show signs of decomposition. They had an odor characteristic of spoilage and a taste that indicated they were not sound. In some instances where death resulted from botulism it was established that the persons who served the olives and some who ate them recognized that the olives were spoiled. The development of the toxin produced by the bacillus botulinus is accompanied by decomposition, and while the investigation has not been complete enough to determine positively that sufficient spoilage to be detected certainly by smell and taste always is present when there is enough toxin to do harm, such has been the fact in all cases so far investigated. The department previously issued a warning to consumers to discard any food that shows indication of spoilage. While all food that shows signs of spoilage may not contain dangerous bacteria or toxins, any spoiled food may contain them and should not be eaten. If the food shows any definite signs of spoilage, however slight, it should be discarded. If there is any doubt about the food being sound, it should be cooked thoroughly before being served.

Government Using Every Power.

The Federal officials have used every power conferred upon them by the law to eliminate from the channels of trade all ripe olives that are injurious to health. Seizure has been made of all shipments coming within the jurisdiction of the Federal Food and Drugs Act which were found to be in violation of the law. The officials have no power to act, however, except where the foods are actually found to be decomposed or to contain harmful ingredients or otherwise violate specific provisions of the law. Only an occasional food package in millions is infected with bacillus botulinus, and since it is physically possible to open and examine but a comparatively few of the millions of food packages entering interstate commerce, it is beyond the power of the officials to protect the public completely. The officials have suggested to the packers that they recall from the trade all ripe olives which have not been processed at a sufficiently high temperature and that they reprocess the olives at a temperature sufficiently high to insure complete sterilization. The department does not have the authority to require the trade to take the action suggested, but believes that the industry will take such action voluntarily.

PROTECTING WOODLANDS FROM INJURY.

That young growth in the woods, known popularly as "brush," is something to be rid of, is a prevalent but mistaken conception, since, as forestry specialists of the United States Department of Agriculture point out, a forest can not maintain itself long without reproduction. For the sake of getting a scattering of green grass in the spring, it is the short-sighted practice in hundreds of localities to fire the woods regularly. This results in killing thousands of small trees needed to continue the forest in the future and also injures a large amount of marketable timber. Furthermore, such burning destroys a large amount of rich vegetable fertilizer.

Cattle and hogs in hardwood stands and hogs in long-leaf pines keep the forest from being restocked. Damage from insects can be reduced by cutting timber at the proper time of year and by utilizing lightning-killed trees without delay, since they harbor destructive pests. Cattle destroy the productive leaf mulch which keeps the trees growing during long, dry spells. All large openings where light comes through into the forest should be filled with younger trees. Fully stocked woods contain little or no grass, but afford full shade, which prevents the soil drying out and keeps the trees growing.

TIMBER HELPS POOR LANDS

Timber is essentially a poor land crop. Steep slopes, poor soil, rocky land, unusual corners, gullied and wooded tracts—all these afford opportunities for growing timber profitably, say specialists of the Forest Service, United States Department of Agriculture. A careful survey of the average farm will reveal a surprising number of spots of this sort which can be utilized to advantage. If they do not already have trees, planting them with the proper varieties will materially increase the value of the land.

NO COTTON TO BE GROWN IN PINK BOLLWORM AREA

(*Continued from page 1.*)

noncotton zones indicated and to take steps for the prompt establishment of the restricted zones referred to. He has further stated that he will convene the State legislature in extraordinary session during May for the purpose of making such amendments as may be necessary to the Pink Bollworm Act of the State to carry out the action indicated and to make provision by specific appropriation of State moneys for the reimbursement of planters in the noncotton zones for the losses which they may sustain as a result of the prohibition of the growth of cotton and for the reimbursement of such planters for cotton actually produced in 1919 and which has already been destroyed in control operations with respect to the pink bollworm.

What Louisiana Will Do.

1. The State of Louisiana will establish and enforce as a noncotton area all of the Parishes of Cameron, Calcasieu, and Jefferson Davis. Inasmuch as these parishes include a considerable area beyond known infestation, the requirement of a regulated zone surrounding these parishes is deemed unnecessary.

2. The State of Louisiana will establish a regulated zone of a 10-mile radius surrounding all oil mills in Louisiana which are known to have received seed during the last three years from the parishes of southwestern Louisiana now known to be invaded by this pest. Such points in Louisiana are now known to include Shreveport, Monroe, Bunkie, Alexandria, Broussard, Eunice, and Gretna.

The governor and other authorities of Louisiana have already taken steps to provide and enforce such noncotton zone, and also for the reimbursement of the losses of planters in such zone as a result of this action.

Proposed Quarantine by Department.

The execution of this agreement and plan of action arrived at by the Federal Horticultural Board of this department and the official representatives of the States of Louisiana and Texas will make it possible, the Secretary of Agriculture states, to limit the Federal quarantine to the noncotton and the regulated zones described as to these two States. This action will be supplemental to the State quarantines and for the purpose of giving Federal authority and aid in their enforcement.

It will place no restrictions on the movement interstate of cotton and cotton products out of the sections of Texas and Louisiana not included in the quarantined districts; in other words, the districts actually known to be invaded by the pink bollworm and the districts which have been placed under regulation on account of contiguity to such districts or suspicion of possible infestation through movement of cotton seed. It is believed that it will be possible to discontinue many, if not all, of the regulated zones about oil mills in Texas and Louisiana which are under suspicion on account of having received seed from the invaded districts in Louisiana should the thorough inspection of the season of 1920 show absence of invasion by the insect at these points.

Cotton Products Included.

It is proposed that these quarantines and restrictions covering movement of products out of the noncotton and regulated zones of the States of Texas and Louisiana shall apply to all cotton products other than oil, including seed cotton and cotton lint—baled or unbaled—cotton seed, cottonseed hulls, cottonseed cake and meal, bagging and other containers that have been used with respect to cotton, and shall include also provision for such inspection and cleaning of common carriers, vehicles, etc., as may be necessary to prevent the accidental transportation of cotton seed.

The department believes, and has been tentatively so advised, that this action on the part of Texas and Louisiana as cooperated in by the Federal Department of Agriculture will make it possible for the other cotton States of the South which have already issued quarantines or are contemplating issuing such quarantines against Texas and Louisiana on account of the pink bollworm to accept the Federal quarantine as fully meeting the needs, or at least to limit such quarantine action to the areas and products covered by the Federal quarantine and by the quarantines promulgated by the States of Texas and Louisiana.

Secretary Meredith's Statement On the Pink Bollworm Situation

The Secretary of Agriculture has issued the following statement on the pink bollworm situation:

"The pink bollworm menace has been prominently before the State of Texas for the past four years, since its discovery in Mexico in 1916 and the determination of its presence over limited areas in Texas in the fall of 1919.

"The cotton and other interests of Texas are aware of the active effort that has been made by the Federal Government, in cooperation with the State, to eradicate the insect and to prevent its further entry from Mexico, and of the fact that Congress, during these years, has appropriated some $1,400,000, the greater part of which has been expended in Texas for the prosecution of the work. Some $600,000 for its continuation is provided in the bill making appropriations for the next fiscal year which is now pending in Congress.

Money Not Spared to Fight Pest.

"The campaign against the pink bollworm has included not only the clean-up of the infested areas at great cost to the Government, but also the maintenance of a border quarantine between the United States and Mexico, involving the control of all traffic between these two Republics. Further than this, the Government has controlled the entry of foreign cotton and has provided for its fumigation and disinfection at an expense of millions of dollars to the importers, this control extending even to the cotton mills and until the imported product is actually utilized in manufacture. There has been no halting as to appropriations or as to work to free Texas and other sections from the pink bollworm and to safeguard the United States from this new menace to the cotton crop and related industries.

"The control operations prevented the further entry of the pest from foreign sources, and, up to last year, brought Texas to a very favorable situation with respect to the possible ultimate extermination of the insect. It has already been practically eliminated from two, if not three, of the areas known to be infested in that State, and in the larger Trinity Bay area the clean-up was so thorough that not a single specimen was found during the season of 1918. The work at the end of 1918 was, therefore, in a most advantageous position and there was every reason to anticipate its early successful completion.

"Unfortunately, at the end of that season the planters in the large Trinity Bay district made strong demands that they should be permitted to grow cotton in 1919 under restriction—these demands being based on the success of the Federal clean-up operations and the apparent elimination of the pest. The experts of the department advised strongly against this plan, realizing that complete success could not be obtained except by the elimination of cotton culture for a period

of two, or preferably three, years. Ultimately, however, the growth of cotton under restriction was allowed and the State pink bollworm act was amended by the legislature to make such course possible, but this was with the definite understanding by the Federal Department of Agriculture that if the growth of cotton in the invaded district should result in the reappearance of the pink bollworm in the district the authorities of the State would promptly reestablish a noncotton zone for all infested areas and maintain it for such period as might be determined to be necessary to complete the eradication of the pest. In this agreement, the department was advised, the planters of the district also joined.

Importance of Noncotton Zones.

"The unfortunate but natural result of this resumption of cotton planting has been the scattered reappearance of the pink bollworm over the entire area formerly infested, with some extensions into new territories. The fact that the insect can live over to the second year in the larval stage probably largely accounts for the infestation of 1919, and this emphasizes the necessity of maintaining noncotton zones for a longer period, or probably for at least three years.

"This was the status of the work at the end of 1919. A new and very serious phase of the situation developed early in 1920, as the result of the failure of the State of Texas to carry out the program of control which had been promised if the insect should reappear in the quarantined and restricted district, namely, the reconversion of that district into a noncotton zone. This failure to act has been due to the strong opposition on the part of planters in the infested districts, and the apparent unwillingness on the part of the authorities to take the drastic action which the situation required.

"An added danger resulted also from the determination, early in February of this year, of the establishment of the pink bollworm in southwestern Louisiana, in the parishes of Cameron, Calcasieu, and Jeff Davis. The reappearance of the insect in Texas and its discovery in Louisiana together present perhaps the most serious situation which has ever confronted the cotton industry of the United States, and unless the work which this situation necessitates can be promptly undertaken, both as to Louisiana and Texas, the results of the efforts at extermination already carried out in Texas will be lost and the pink bollworm will certainly get out of hand and become a permanent and very serious limiting factor in the production of cotton in this country.

Situation in Louisiana Favorable.

"Promptly following the discovery of the infestation in Louisiana, the authorities of that State established a drastic quarantine prohibiting the growth of cotton in the infested parishes, and at a recent convention held in New Orleans steps were taken to secure a large State fund for the purpose of aiding in control work, and particularly for the reimbursement of planters in the quarantined districts for the net losses due to the prohibition of the growth of cotton. The situation at the present time, therefore, as to Louisiana, is on as favorable a basis as could be desired, and this department has every reason to expect thoroughgoing cooperation in the clean-up and control work. If this cooperation is maintained it seems probable that the insect can be eradicated in that State within two or three years.

"Strong efforts have been made to secure similar cooperation on the part of Texas, such cooperation in fact as the State has hitherto given in the work. These efforts have included petitions and memorials to the governor of Texas by the Texas Representatives in Congress, the Texas Board of Trade, and other important associations, and responsible citizens of the State, as well as definite and emphatic recommendations in letters and telegrams from this department. Similar recommendations have been made by the pink bollworm commission created under the Texas pink bollworm act of 1919.

"The one drawback to success now is the delay of Texas in establishing noncotton zones for the infested areas in that State, a delay which has already resulted in the planting of considerable portions of these areas to cotton. The destruction of this cotton later on, if authorized by the State, will simply mean that much greater cost to the State and the Federal Government.

"This department has urged from the beginning that, in view of the sacrifices made by the planters in the invaded district in the interests of the State as a whole, steps should be taken by the State to reimburse them for their net losses, following in this respect the example already set by Louisiana. It has pointed out, also, that the control of the pink bollworm is of vital interest to Texas, as well as to all other cotton-producing States, and that the prompt exercise on the part of Texas of the full powers given in the pink bollworm act of 1919 of that State would do much to limit the need of drastic quarantine action, both State and Federal, which otherwise will undoubtedly have to be taken. Such State action, in fact, has either already been taken or is being contemplated by most of the other cotton-growing States.

Extermination Depends on Prohibition of Cotton.

"The strongest emphasis has been placed on the fact that the extermination of the insect in Texas and Louisiana is absolutely contingent on the prohibition of the growth of cotton in infested areas. The growth of cotton under restrictions, or the adoption of other methods of control, will simply mean the perhaps slower, but no less certain, ultimate spread of the pest. It has also been emphasized that extermination is possible only under present conditions—in other words, when the infestation is just beginning and when the insect is scanty in numbers and limited in distribution. Any postponement or limitation, therefore, of the effort at this time would mean practically the loss of the opportunity of extermination and an acceptance of the ultimate spread of the pest throughout the South. Furthermore, it has been strongly indicated that success in the eradication effort necessarily requires the complete cooperation of the States involved in the measures outlined and that if the effort should fail through any halting in the work or any limitation on the methods which alone can bring success the responsibility therefor will rest upon the persons or communities concerned.

"The department is advised that the interests in Texas related to cotton production and utilization are, for the most part, strongly in favor of the program of extermination and of provision by the State for such compensation as may be just to the planters in the districts which will be directly affected by the prohibition of the growth of cotton. It is also advised that the normal production of cotton in these districts represents only about 1 per cent of the total production of the State and that, on account of unfavorable climatic conditions, a profitable crop is secured only once in two or three years. It recognizes that opposition to the proposed prohibition on the part of those affected is natural and, furthermore, that it has been intensified by the fact that whereas the Texas law provides for compensation for crops destroyed in the control operations, the State has made no definite appropriation for that purpose and no reimbursement has been made for such losses. This situation strongly emphasizes the necessity of prompt action by the State to make provision for the reimbursement of those farmers whose sacrifices, as already indicated, are for

the general welfare of the State and of the cotton industry.

Pink Bollworm Worst Cotton Pest.

"There have been many misstatements about the pink bollworm and its importance which have resulted from propaganda against any control work whatsoever with respect to it. The more important of these statements are that the insect is an old and well-known cotton pest in Texas and throughout the South, and that it is comparatively unimportant in its effect on the cotton crop, or that, granting perhaps that we have a new pest in the pink bollworm, it at least has not occasioned any damage to the cotton crop in Texas or elsewhere and is a negligible factor.

"The contention that the pink bollworm is an old and well-known enemy of cotton, so far as it is based on an honest belief on the part of planters, is due to the confusion of this insect with the old time bollworm of cotton, known also as the corn earworm, and perhaps with a number of other native worms, which occasionally bore into the bolls of cotton. That the pink bollworm is an entirely different insect and actually exists in the district in question is based on adequate and conclusive determination by the experts of this department and of the Division of Insects of the National Museum at Washington. The history of the insect also is well known—its origin in India, its spread to Egypt, and from thence, with seed distributed over the world for planting, to practically every other cotton-growing country. The enormous losses which it is now causing in Egypt, Brazil, Mexico, the Hawaiian Islands, China, etc., are also matters of official estimates and records.

"The second contention, namely, that the pink bollworm has caused no loss to the cotton crop of Texas, is essentially correct, but it can not be properly urged as an argument against any control work. That the insect has done little or no damage so far is due largely to the expenditure by the Federal Government of nearly a million and a half dollars in clean-up and other control work, and the fact that the pest is just beginning to get a foothold in Texas, and, on account of such control and its recent introduction, has not yet reached numbers sufficient to cause serious losses. It must be borne in mind that the invasion is now at a stage where extermination is possible and that this opportunity will have passed completely if the effort at control is stopped, or materially lessened, until the insect has become widespread and has had time to bring about, to any degree, the maximum amount of damage which it has caused in other countries and which it will undoubtedly ultimately cause in Texas and elsewhere in the South if it is not exterminated.

Responsibility of Texas.

"The success, therefore, of the work of extermination, which Congress has so liberally supported, is contingent on the action of the States concerned. Louisiana has undertaken to do what ought to be done under the circumstances. It remains for the executive and other authorities of Texas to determine whether this cotton pest shall be given the opportunity to overrun the State, and ultimately the South, or whether the campaign of eradication shall go on efficiently with the promise of success which is so encouraging from the work already carried out. This responsibility can not be shifted. The situation has become much more serious on account of the failure of Texas to act under its law and under the authority already granted by the legislature, but it is not too late to retrieve some or most of the damage which this failure has occasioned.

"The necessity at this time is the immediate declaration of noncotton zones for the infested areas in Texas, so as to require the plowing up of the fields already planted and to stop further planting in such areas; and, in connection with this action, the taking of such steps as may be necessary to give assurance to the planters concerned of ultimate reimbursement by the State for their losses.

"The department is advised that the governor of Texas has agreed to communicate with all the members of the legislature with a view to secure their pledges to vote for a compensation measure at a special session to be convened within 60 days. He has also agreed to issue the necessary noncotton zone proclamation if the pink bollworm commission of the State so recommends. The commission held a general hearing at Houston, Tex., on March 31, and the department is informed that it has recommended the establishment of a noncotton zone for the infested territory during the year 1920 on the basis of compensation to the farmers within the district. It is hoped that this recommendation will be put into effect promptly, so that there may be complete cooperation between the department and the State and the effort to eradicate the pink bollworm may be vigorously carried out."

A FLORIDA GIRL'S "CHICKEN MONEY."

Marie Bradfisch, who lives in St. Johns County, Fla., has found poultry raising profitable. In 1919 the net returns from her birds was $739.75.

This little Florida girl two years ago joined one of the poultry clubs supervised by the United States Department of Agriculture and the State agricultural college. She made a good profit the first year and won the State championship. She started her second year poultry work with 105 fowls, valued at $258.

During 1919 she sold 1,030 eggs and set 14 dozen. From the fowls raised she sold 49 for $89 and kept 209, valued at $525. The total income from her flock for the year was $1,330.75. When her expenses for feed and the value of the original flock were deducted, her profits for the year were $739.75.

This excellent record won her the prize of $50 which had been offered by two members of the Board of Control of the State Institutions of Higher Learning to the girl who did the best work in a poultry club in Florida in 1919.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended April 10, 1920:

Sugar-Beet Growing under Irrigation. (Revised edition.) Farmers' Bulletin 567.

The Feeding of Dairy Cows. (Revised edition.) Farmers' Bulletin 743.

Prickly Pear as Stock Feed. Farmers' Bulletin 1072.

Hessian Fly and How to Prevent Losses. Farmers' Bulletin 1083.

United States Grades for Northern-Grown Onions. Department Circular 95.

How to Use Market Stations. Yearbook Separate 797.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention make your request definite by specifying the distinct class and number of publications desired, for example: Farmers' Bulletin 110; Department Bulletin 114; Department Circular 76.

The farm family, because of its comparative remoteness from the turmoil and distractions of the city, has wonderful opportunities to make a real home. Among these opportunities, specialists of the United States Department of Agriculture point out, is that of beautifying the farmstead so that it may be more attractive to the occupants. This will tend to make both young and old more contented, will add materially to the enjoyment of those who pass by, and incidentally to the selling value of the farm.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

How They Save Farm Labor.

With a 28-inch horse-drawn plow, one man accomplishes from 70 to 80 per cent more than with a single-bottom plow. One man with a 28-inch plow drawn by a tractor covers from 30 to 35 per cent more ground in a day than does a man using six horses on a horse-drawn plow of the same size. A three-bottom plow drawn by a suitable tractor enables one man to accomplish from 60 to 70 per cent more than does the two-bottom plow drawn by six horses.

These facts were brought out by about 600 replies to an inquiry addressed to farmers in central Illinois by the Office of Farm Management, United States Department of Agriculture. Under conditions where the use of a two-row corn cultivator is practicable, this machine enables one man to cover nearly twice as much ground per day as with a one-row cultivator. In the section represented by replies received by the department, three horses are most commonly used on the two-row cultivator and the addition of a fourth horse apparently increases but little the amount of ground covered per day.

Such of these farmers as use corn binders have found the use of this machine increases the efficiency of man labor 50 per cent, on the average, over that achieved when cutting and shocking by hand. Eighty bushels, the reports show, is an average day's work for one man when husking corn from the standing stalk by hand.

With respect to the value of a hay-loader, they learned that the use of this implement reduces by about 25 per cent the time required to put on a load of hay, while the amount of labor required for unloading into the mow is only a little more than half as great when a hay-fork is used as when the work is done by hand.

How A City Library Helps Farmers.

Few city libraries have as many country book borrowers as they should, says the United States Department of Agriculture, but the free public library at Stockton, Calif., is a pleasant exception to the rule. Not only does it send out traveling libraries to communities and school districts but it also encourages the country people to make direct use of the main library. Aside from the liberal policy of the trustees of the Stockton library, its central location and the good roads leading to the city have been big assets in the building up of the large country circulation.

There are now 30 communities and 22 school districts that are receiving county free library service from Stockton, but the main library has a direct country circulation of 6,281 volumes. The large collection of books at the main library is attractive to country book borrowers.

Another incentive to country readers has been the cooperation between the farm adviser and the home-demonstration agent and the county librarians. These extension workers, sent out by the United States Department of Agriculture and the State agricultural college, make arrangements with the library authorities to forward books on fly control, clothing, and study of food to the communities where these subjects have been discussed at the centers and where they are to be county-wide projects for the coming year.

Tobacco Consumed in United States.

Figures showing the consumption of tobacco in the United States over a long period have recently been compiled by the Bureau of Crop Estimates, United States Department of Agriculture.

Tobacco consumption in 1790, the oldest year for which it can be estimated, appears to have been nearly 29,000,000 pounds in this country. For 1839 to 1844 the yearly consumption is reckoned to have been over 60,000,000 pounds, and for five years of the decade 1845–1854 the average stood at over 71,000,000 pounds. In the entire decade 1865–1874 the yearly tobacco consumption had increased to nearly 76,000,000 pounds. Thereafter the increase was more marked. The average consumption of 1875–1884 was 219,000,000 pounds; of 1885–1894, 312,000,000 pounds; of 1895–1904, 401,000,000 pounds; and of 1905–1914, 588,000,000 pounds. The quantity of tobacco available for consumption, according to the process used, increased from 669,000,000 to 900,000,000 pounds from 1915 to 1916, and was 1,000,000,000 pounds in 1917 and 828,000,000 pounds in 1918. The average of the last two years is better for those years than the numbers mentioned, and this is 914,000,000 pounds. Prewar consumption was eight times the consumption of 40 years before, and in the war years apparently ten times that quantity.

The computed per capita consumption of tobacco in this country has been steadily gaining since 1865–1874. Before that time, back to 1839, it seems to have been about 3.3 pounds. Following the Civil War the computed average is as low as 2 pounds, and this was followed by a climbing movement that reached 6.4 pounds in 1905–1914 and 8 pounds during the following four years. For domestic tobacco the per capita consumption grew from 1.8 pounds in 1865–1874 to 5.9 pounds in 1905–1914, and for foreign tobacco from 0.16 to 0.49 of 1 pound.

The Tale of A Scientist's Kite.

The Weather Bureau of the United States Department of Agriculture gathered a great deal of valuable information for Army and Navy aviators during the war and for mail service aviation since that time by means of kites to which is attached a self-recording instrument, the meteorograph. Some of the difficulties experienced are shown by an incident that occurred March 16 at Leesburg, Ga. In order to attain the height desired, a number of kites had been sent up tandem. They consisted of strong wooden frames about 7 by 7 by 3 feet. Each kite was covered with about 12 yards of fine cambric and were attached to fine piano wire. They were let out and hauled in by a reel operated by electric motor. Due to a defective splice, four of the kites with about 3 miles of wire broke away and flew about 18 miles before the wire became entangled in a tree. A farmer telephoned the news to the aerological station, but before the party sent out to recover the kites could reach them some negroes had wrecked the first one and stolen the cloth, which was later found in nine pieces in various cabins. The other three kites, when the first one was separated from them, escaped and flew about 3 miles farther. During the flight, however, the wire became entangled with a boy and a mule plowing in a field. The boy grasped the wire and cut and burned his hands. The mule became so entangled in the wire that the help of three men was required to release him. The three kites were finally caught in another tree which was cut down by another party of negroes and, in falling, wrecked the second kite, which was dismantled by the

negroes. The two remaining kites again escaped, flew about 3 miles farther and landed in one of the tallest pine trees in the region. The third kite had a meteorograph attached which was recovered undamaged. A heavy rain came on, however, and the two remaining kites were broken up and finally abandoned.

Utah Kills Many Noxious Animals.

Something of the extent of the control measures taken by Federal and State authorities in Utah to rid that State of noxious animals is indicated by a report recently received by the Biological Survey, United States Department of Agriculture, which is working in cooperation with the Utah State Live Stock Board in this enterprise. During the latter half of last year hunters employed by these two agencies killed 1,859 predatory animals with firearms and traps. These included 1 wolf, 6 lynxes, 10 bears, 238 bobcats, and 1,604 coyotes.

These figures by no means indicate the full extent of the work of the hunters, since during the period indicated they devoted a great part of their time to poisoning operations. No figures are available to show the extent of this phase of the work in the last six months of 1919, but for the fiscal year ending July 1, 1919, the number of animals poisoned was estimated at between 11,000 and 15,000, as against 5,298 killed by hunting and trapping.

One hunter, whose work is typical of many, distributed 4,000 small baits during the year, poisoned 15 large baits, and established 50 poison stations. Small baits are bits of poisoned food which are so placed as to attract the attention of the noxious animals. At the end of a campaign the bait that remains can be gathered up, or, if left until warm weather, it will disintegrate and so do no harm. Large baits are the carcasses of sheep, old horses, or other animals into which small doses of poison are injected. A poison station is established by placing an unpoisoned carcass at some point where it will attract the wild animals sought. After they locate it and begin feeding on this harmless meat, small bits of poisoned bait are scattered in the vicinity, which are usually eaten readily and with deadly effect.

When the work was started in 1915 it is estimated that there was an annual loss of 500,000 sheep from predatory animals in Utah, whereas the loss for the fiscal year 1919 was less than 75,000 head. The total saving of live stock and poultry was estimated at over $1,000,000, in addition to thousands of ducks and other game birds, and many deer, saved from destruction. Deducting the amount received from fur sales, the expense of accomplishing this work was between $60,000 and $65,000.

Sugar Planters Aid Entomologists.

Louisiana sugar planters have placed $10,000 at the disposal of the United States Department of Agriculture to assist the Bureau of Entomology in importing parasites of the sugar cane moth borer, the most destructive enemy of sugar cane in the United States. The work of importing and establishing the parasites of the borer was undertaken by the Bureau of Entomology last year. An agent was sent to Cuba and succeeded in getting several hundred living specimens of the parasite to the United States alive. This parasite has apparently become established in the Louisiana cane fields, and probably will assist in controlling the pest. The planters, realizing the importance of the work and the handicap under which the bureau was working for lack of funds, undertook to finance it to a certain extent. The money thus made available will enable the Bureau of Entomology to keep five agents in Cuba this year instead of one, and thousands of this parasite instead of a few hundreds will be sent to the cane fields during the coming season.

T. N. T. As an Industrial Explosive.

With the cessation of hostilities the Government found itself in possession of a large supply of the high explosive known as "T. N. T.," which has been deemed unsafe for storage against a possible future emergency. With the object of making possible the use of this surplus explosive for industrial purposes the United States Department of Agriculture reports results of investigations made by the Bureau of Mines and the College of Agriculture of Wisconsin.

Briefly stated, these investigations show:

That T. N. T. can be safely cartridged and handled for land clearing, and that its desirability will depend on the cost to the user.

Complete detonation was best secured by use of the No. 8 exploder, No. 6 being the size usually recommended for dynamite applied to like conditions.

Moisture encountered in ordinary land-clearing operations does not affect this explosive; neither do ordinary variations of temperature.

That the health of the workers is not affected by the explosive gases when the work is not confined to a limited space.

That the amount of T. N. T. required is about 75 per cent of the amount of "20 per cent ammonia dynamite."

On account of the smaller quantities used, definite regulation of charges should be made. There may be considerable danger if the proper charges are much increased.

It seems likely that the surplus of high explosive manufactured to fill bombs and shells for the Army in France may be put to a valuable peace-time use. It is not contemplated that T. N. T. will be manufactured expressly for industrial use and the recommendations cover only the unused explosive left from the military supplies during the recent war.

Awkward Ways Waste Energy.

From buttoning shoes to washing dishes, there is an easy and awkward way of doing all work, as everyone well knows. Now, along comes the scientist, who says his experiments show that, aside from feeling and looking more comfortable when you do your work in the right way, you also save considerable energy.

This fact is one of several which recent experiments made by the Office of Home Economics of the United States Department of Agriculture have disclosed. These experiments have been made for the purpose of determining the energy requirements of an individual in the various circumstances of his daily life and for use in estimating the amounts and kinds of food required by him to meet the needs of his body for energy.

It was found in the homely everyday task of dish washing that, when a woman washed dishes on a table so low that she was obliged to bend over, her energy output was 30 calories per hour. When she washed them on a table that was a little too high for comfort, it required 25 calories per hour, while only 21 calories were used when the working surface was of the right height.

It doesn't take long to saw off the legs of a table or to put blocks under it which will make it the right height.

When planning to build a farm home, say specialists of the United States Department of Agriculture, select a location near good trees, so that their shade may be used and enjoyed by the family every day during the summer. It takes so long to grow good trees that existing ones should be cherished and utilized to the fullest extent.

Trees should not be planted directly in front of the farmhouse, but should be placed somewhat to each side so as to make a frame through which a view of a portion of the front is obtained, say specialists of the United States Department of Agriculture.

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STRONG DEMAND INDICATED FOR SPRING WHEAT OF 1920

Large Carry Over Is Largely Winter Wheat of Low Milling Quality

Growing Crop of Winter Wheat Will Supply Only 483,617,000 Bushels of 800,000,000 Bushels Normally Needed

To give farmers in the spring wheat States the benefit of information on the general wheat situation, in order that they may be better able to decide whether to increase plantings of spring wheat, because of a low production of the winter crop indicated by conditions April 1, the United States Department of Agriculture to-day issued a statement calculated to throw some light on the situation.

The department points out that the estimated production of 483,617,000 bushels of winter wheat this year, based on April 1 conditions, as against 731,636,000 bushels last year may be still further reduced by a further abandonment of winter-killed fields. Information gathered by the department also indicates that Hessian fly infestation will be unusually severe over large areas and that the grasshopper menace is serious in a large part of the Great Plains.

Carry Over of Low Quality.

The department further explains that apparently a large carry-over of 150,000,000 bushels from last year's crop is principally winter wheat of low milling quality and therefore figures in the equation as a much lower amount. Stocks on hand in the three principal spring wheat States are only about half as large as a year ago. The carry-over during the war ranged from 163,000,000 in 1916, the highest on record, to 28,000,000 in 1918, the lowest recorded. Prior to the war the normal carry-over was around 75,000,000.

Reports from the spring wheat region indicate that many farmers are likely to reduce their acreage of this crop. Weather conditions have not favored spring work, and the serious shortage of farm labor has also affected planting. The supply of hired farm labor in the country is only about 72 per cent of the normal supply, compared with approximately 84 per cent of the normal supply a year ago.

May Justify Larger Acreage.

The poor condition of the winter wheat crop, together with the apparently continuing world demand for wheat, may justify farmers in the spring wheat belt in revising their plans in order to increase plantings of the spring crop in spite of difficulties.

The normal wheat requirements of the United States for consumption and export are about 800,000,000 bushels. Of this only 483,617,000 bushels is indicated from the winter wheat crop. World conditions do not indicate a falling off in demand, although southern Russia is reported to have 55,000,000 bushels for export this year. There is some question, however, as to whether Russia can export because of the disorganized condition of transportation facilities. Australia has a short crop and probably will have no wheat for export during the next two years. Owners of old wheat in storage are not now permitted to ship it out of Australia. The Argentine crop appears to be fair.

While there are many factors yet undetermined which are likely to affect the production this year, the existing shortage of spring wheat of satisfactory milling quality indicates probability of continued active demand for high-grade spring wheat from the new crop.

WORLD ACREAGE OF WHEAT

A dispatch received by the Bureau of Crop Estimates, United States Department of Agriculture, April 20, 1920, from the International Institute of Agriculture, Rome, Italy, gives the total area in winter wheat this year in Spain, France, Scotland, Roumania, Bessarabia, Canada, United States, British India, Japan, Tunis, as 94,962,000 acres, which is 92.3 per cent of last year and 91 per cent of a five-year average. The condition of sereals is good in Great Britain, Ireland, Denmark, Austria, Morocco; average in Italy, Algeria, Mesopotamia.

WHY COUNTY AGENTS MADE GOOD WITH FOLK ON FARMS

Demonstrators Prove Right to Permanent Place in Agricultural System

Statement of What Extension Work Has Accomplished in North and Western States During Last Year

He is a figure of untold possibilities as he scampers along the country roads in his little, mud-spattered car. Peace has her heroes, and he is one of them. There is romance in every human achievement—in the building of the Panama Canal no less than in the European War—and the story of the proving of the county agent is worthy of more than casual attention.

Horace Greeley's laconic advice to the young men of the East applied to the conditions of his period, but had he lived until this day the astute observer of American affairs would have extended his remarks to the young men of the whole country with an admonition to stay wherever they happened to be if a county agent was there. Moreover, Mr. Greeley would find something intensely reassuring for the present generation could he see the recent report gotten out by the States Relations Service of the United States Department of Agriculture concerning the activities of the county agents in the 33 Northern and Western States for the year 1919.

What First Agent Faced.

County agents—first called "farm demonstrators"—have been employed in the Southern States since 1903. The first county agent in the North and West made his début in Broome County, N. Y., in 1911. Popular sentiment of that time was inclined to the opinion that the farmer was an ultra-conservative individual; that he resented the idea of change, and was loath to depart from the customs established by his pioneer ancestors. It was hinted in the gatherings of the poorly informed that the farmer was opposed to any aid from scientific sources, and that the county

demonstrator, fresh from the fount of scientific endeavor, would be as popular in the rural district as a German crown prince in the Place de la Concorde. But the first county agent wasn't even shot at! On the contrary, to one who knows farm hospitality in New York State, there is a pleasant suggestion of chicken pies and fresh vegetables as the weapons of welcome.

J. H. Barron, who was the pioneer county agent in the Northern States, found conditions so satisfactory that before the end of the year of his appointment, four more demonstrators were at work in New York and New Jersey. During the year 1912–13 over 100 well-equipped men were appointed as demonstrators, and the idea demonstrated its right to become permanent.

Many Organizations Helped.

From the beginning the work was supported mainly by public funds, but various organizations such as commercial clubs, railway companies, and business concerns only indirectly connected with agriculture, also contributed liberally in many cases. When the farmers became convinced of the economic value of the work they cordially supported it and assisted financially in the support of their own county agents. The passage of the Smith-Lever Act in 1914 gave permanent Federal support to the extension work and made the county agent a national figure.

The work has developed so rapidly that in 1919 we find 1,200 agents at work in the 33 Northern and Western States in addition to the 1,100 or more employed in the 15 Southern States. The value of the work is incalculable, but a fairly comprehensive idea may be gained from some of the figures given in the report for the last year. If anyone is carrying the impression that the path of the county agent is strewn with flowers and hedged with chicken pies, a glance at this report will disabuse the mind.

In 1919 our statistician, who delights in accuracy, reports that exactly 90,660 demonstrations were conducted by the 1,200 county agents in the Northern and Western States alone, and these meetings called out a total attendance of nearly 1,000,000 people. A million people constitutes a fairly noticeable portion of our "body politic." The county agent is not a man of one idea; at these meetings he handled such subjects as corn selecting, seed-corn testing, the control of smut upon oat and wheat seed, treatment of the diseases of beans and potatoes; he furnished practical illustrations of the proper methods for introducing the valuable soy bean and the two nitrogen-gathering cousins, alfalfa and sweet clover. He showed farmers how to build silos, prune and cultivate orchards, dig drainage ditches, and establish irrigation systems; he showed how to apply lime and chemical fertilizers, and taught the scientific methods for killing pests and eradicating weeds. For variety he taught the use of hog-cholera serums and black-leg vaccines.

What Agents Have Accomplished.

As a partial result of the county agent's efforts in these States, 216,408 farmers planted 7,042.936 acres of corn with selected and tested seed; 1,699,895 acres were planted with oats, treated to prevent smut, and 186,045 acres of potatoes were given a better chance by reason of the seed potato treatment demonstrated at these meetings.

The busy 1,200 found time to help the farm gardens, and thus to increase largely the value of the vegetables produced.

Dairying methods received a merited share of attention. Registered bulls to the number of 10,025 were secured for the farmers, 16,584 registered cows, 4,017 registered rams, 8,925 registered boars, and 16,876 registered sires of all kinds were transferred from one community to another, thus increasing their periods of service and extending the value of their lineage to a larger number of herds.

Farmers have not generally kept farm accounts that would enable them to make an accurate study of profit and loss. There are so many ramifications in the average farm business, and so many vague values to be determined, that farm bookkeeping presents difficulties which the farmer himself has been slow to overcome. But the scientists have devised simple systems of farm accounts and the agents have introduced them, and have helped many farmers to analyze their business, and thus detect losses which they were enabled to change to profits.

Marketing, purchasing, and cooperative associations were organized by the agents, and through these organizations the farmers of the Northern and Western States were saved a total of $5,500,000. Seven thousand local associations of various interests were organized with a total membership of over 91,000 persons.

During the war labor committees of the farm bureaus were organized to supply help to the farms. These have been continued in most cases, and nearly 119,000 laborers were sent out to farmers in 1919.

One might imagine that the county agents had spent a busy year with these items, but they found time to make 510,243 farm calls and were at home to inquirers in their office one day each week. More than 1,412,000 people took advantage of this service during the year.

A good deed shines afar in this naughty world, and it would be difficult to confine the benefit of the county-agent system to the farmers alone, even if such limitation were desirable from the point of view of the farmer, and decidedly it is not. The law of supply and demand never injures those who obey its precepts, so, though it seems paradoxical, better markets and better prices for the producer usually mean better purchasing facilities and better prices for the consumer also. Thus in demonstrating the proper methods for treating seed potatoes to insure against certain diseases the agent does a good turn for both the farmer and the city customer. Better methods of planting, packing, and shipping mean that the farmer will save a larger portion of his crop and that the consumer will not be required to pay for produce which has been wasted. The farmer is assured of a better and more reliable market for his standardized products, and he avoids the loss which must accompany poor crops and poor marketing conditions. Both are happy.

Benefits Extend to City.

Through the farmers' marketing and purchasing organizations inspired by the county agent the city man benefits directly. The direct features of the newer methods of selling produce from the farms assures the elimination of many unnecessary profits that usually intrude between the crop and the consumer. Besides it guarantees that the article will arrive in better condition by reason of correct packing and handling. In the same way the farmers' purchasing organization gives the same directness of method to the city business which has something to sell the farmer.

Finally the agent, with his fund of intimate and up-to-date information, is available to those city folk who wish to plant gardens in their back yards or in their window boxes. He is far too busy to give these claimants the same individual service that he accords the farmer, but he can and will assist wherever the back-yard gardeners will group themselves into organizations and ask for his services in an advisory capacity.

A record of more vital interest can hardly be imagined. It establishes the farmer of America as a keen, progressive business man who is anxious to increase his production and profits by the application of scientific aid, which is constantly supplied him through the medium of the county agent. It indicates a strong, healthy tendency to settle the farms upon a steady economic basis and proves for all time that if the farmer can not always go to the college the college may be sent to the farmer.

PROGRESS IN COLLECTION OF EXCESS PROFITS ON WOOL

Growers Told More Than Million Dollars Will Be Redistributed

Large Dealers Holding $533,000 Pending Income Tax Decision—Congressmen Ask If Further Legislation Is Needed

The Department of Agriculture recently announced the results of a hearing in Washington, called by the Secretary of Agriculture, on matters pertaining to the valuation and handling of the 1918 wool clip. The hearing was granted in response, primarily, to numerous requests by Texas wool growers, but it developed into a consideration both of territory wool and fleece wool. Territory wool is produced west of the Missouri River and the eastern boundary of Texas and practically all of it in 1918 was shipped on a consignment basis to Government distributing centers. Fleece wool, produced east of that line, was largely purchased in small lots through a large number of country dealers. The points at issue in the hearing, therefore, were different for the two classes of wool.

The facts developed showed that nearly all the questions at issue so far as the Texas growers are concerned can be handled only by the War Department, and arrangements are being made for adjudication by the proper authorities in that department. The complaint of the Texas growers, primarily, is that too large deductions for dirt and other impurities were made in valuing Texas wool and that, therefore, the growers received too little for their wool.

The questions that were presented relating to fleece wool come under the jurisdiction of the Department of Agriculture, the wool division of the War Industries Board having been transferred to the Bureau of Markets of the Department of Agriculture by Executive order December 31, 1918.

Reports Collection of Excess Profits.

The Bureau of Markets made a report, covering the period since the transfer, showing the work of securing sworn reports, auditing them, and collecting excess profits which will be returned to the growers. It was shown that, in addition to the 3,600 country dealers to whom permits were issued by the War Industries Board, the Bureau of Markets has discovered about 800 country dealers who operated without permits. The late discovery of many of the names operated to delay the work, but reports will be secured from practically all of these unlicensed dealers.

The bureau has secured reports from all of the large central dealers and has nearly completed its audits. Many of these large dealers, however, have been holding excess profits amounting to about $533,000 pending decision of the Tresury Department as to whether or not income tax will be collected on these sums. The Commissioner of Internal Revenue ruled, on April 9, that payment of income tax on excess profits on 1918 wool will not be insisted on where payment is made to the Bureau of Markets according to the regulations governing the 1918 clip.

The report showed a total of over $1,000,000 in excess profits to be collected and distributed to growers. This showing is on the face of reports submitted by the dealers themselves, so the Bureau of Markets has not audited the books of the dealers.

Government Officials at Conference.

In addition to the Secretary of Agriculture, officials of the Bureau of Markets, and representatives of the wool growers, there were in attendance at the hearing Bernard M. Baruch, former chairman of the War Industries Board; Lewis Penwell, former chief of the wool section; Judge Edwin B. Parker, a former member of the board; Charles J. Nichols, formerly wool administrator for the War Department; representatives of the Quartermaster General's office; and a number of Members of Congress. All of these exhibited the keenest interest in the collection of excess wool profits and pledged full support to the Department of Agriculture in enforcing the regulations. Members of Congress requested the department to advise them as to any further legislation that may be necessary to accomplish this end. Secretary Meredith spoke the determination of the Department of Agriculture to press the work of collecting and distributing excess profits as vigorously as possible with the limited funds and personnel available.

The point was brought out that it is not necessary at this time for individual wool growers to file claims for refunds of excess profits.

USE ONLY CLEAN, PURE SALT IN CURING HIDES AND SKINS

Hides should be salted only with clean, pure salt free from alum, according to a recent statement of the Bureau of Chemistry, United States Department of Agriculture. This bureau is making a study of the best methods for skinning farm animals and curing hides in order to produce a high-grade leather. Salt containing alum partly tans the hide and sets the hair so that it can not be removed. Hides which can not be unhaired properly bring a loss to the tanner and prejudice him in future purchases against hides from the same source.

Tanners recently submitted to the Bureau of Chemistry green salted hides which could not be unhaired after liming in the usual way, in order to find out the cause. An examination showed that on the basis of the dry hide unhaired spots contained 0.8 per cent of alumina and the portions where the hair was not loosened contained 1.25 per cent of alumina. The portions of the hide which contained 0.8 per cent alumina unhaired with difficulty, while the portions containing 1.25 per cent could not be unhaired even on the beam. An inferior salt containing alum had been used in salting the hides and had set the hair.

This incident illustrates the importance of attention to details in the handling and curing of hides and skins. Farmers, country butchers, and dealers are advised by the department to use only clean, pure salt in salting hides. The presence of alum in salt is especially objectionable and as little as 5 per cent in the salt can be detected usually by its astringent, bitter taste.

Farmers' Bulletin 1055, which gives detailed directions for skinning, curing, and marketing country hides and skins, may be obtained upon application to the United States Department of Agriculture, Washington, D. C.

DIVERSIFICATION OF CROPS IN THE SOUTH

A tendency toward increased diversification of crops in the South is observed in an analysis of acreage figures for the past 10 years, recently made by the Bureau of Crop Estimates, United States Department of Agriculture. In 10 States, which grow more than 95 per cent of the cotton crop of the United States, only 36.4 per cent of their total reported crop area was in cotton last year, whereas the average for the past five years was 38.5 per cent; and for the five years before that (1910–1914), 44.5 per cent. Last year corn and cotton combined comprised 74.4 per cent of the total reported crop acreage, which compares with 77.6 per cent, the average for the past five years, and 85.4 per cent for the preceding five years. In other words, miscellaneous crops increased from 14.6 per cent of the total reported crop acreage in the five years 1910–1914 to 22.4 per cent in the past five years and 25.6 per cent last year.

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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WHY COOL FRUIT STANDS SHIPPING BETTER THAN WARM

Mechanical apparatus has been devised by investigators of the United States Department of Agriculture which proves scientifically that, other things being equal, it is preferable to pick such small fruit as strawberries, cherries, and raspberries in the early morning while it is still cool, particularly if the fruit is to be kept some time or shipped a considerable distance. The advantage of early picking lies in the fact that when cool the epidermis, or skin, of the fruit is considerably tougher, generally speaking, than when warm, and so is less easily bruised, as shown by tests. Similarly, the skin of fruit immediately after it has been cooled is more resistant than it is at an ordinary room temperature. However, after fruit has been in an ice box more than 24 hours, the resistance of its skin is in some cases not so great as that of freshly picked fruit which has been cooled quickly to ice-box temperature. It seems possible, therefore, that the storing of fruit tends, after a time, to make the epidermis more tender and more easily ruptured.

The apparatus, while having many distinctive features, is a modified Jolly balance. It consists of an upright metal standard from the top of which an arm projects to one side supporting a sensitive coil spring. Attached to the lower end of the latter is a metal rod that passes through a glass tube, the latter being held in place by an arm attached to the upright. A hair line on the tube and on the metal rod make it possible to determine the point at which tension on the spring balances a given weight. At the lower end of the metal arm a glass rod is attached, to which is cemented a small glass needle with a rounded end.

In operating the apparatus the fruit is placed on the stand of the instrument in a holder, and the stand so adjusted that the surface of the fruit just comes in contact with the tip of the glass needle, when the hair lines on the metal rod and glass tube coincide.

The tension on the spring is released by means of a rack and pinion adjustment, permitting the standard to telescope slowly, thereby lessening the tension of the spring. The operator is able to tell the instant at which lessened tension permits the needle to puncture the fruit, because movement of the needle is indicated by movement of one of the hair lines. When this takes place he at once stops the telescoping of the standard. Then, by reading the scale on the side of the instrument, the weight required to balance the tension on the spring is determined. The weight of the glass rod, minus the weight necessary to balance the tension on the spring, gives the pressure of the needle on the fruit at the time it punctures the skin.

A large number of tests were made with fruit when it was freshly picked, and cooled after washing it in tap water; also after the fruit had been kept in a refrigerator for 24 hours, and again after cooled fruit had been brought to room temperature.

The tests confirm the wisdom of a practice common in many regions, namely, the picking of berries in the morning when still cool. The presence of dew does not make the berries more susceptible to bruising, since tests did not show that moist berries were more susceptible to injury than dry ones.

It seems probable that the increased resistance of the surface of small fruits to mechanical injury when cool has been an important factor not fully appreciated heretofore in the improved keeping quality which results in prompt cooling and refrigeration.

FOREST SERVICE OFFERS CHANCE FOR ACID-WOOD PLANT

Plans are being made by the district forester in Washington, D. C., for the sale of approximately 150,000 cords of chestnut acid wood stumpage in the Nantahala National Forest in western North Carolina. The timber lies in Macon County, N. C., along the Nantahala River and about 15 miles distant from Andrews, N. C. Franklin, N. C., is about the same distance to the east.

On privately owned land adjacent to this body of Government timber there is estimated to be approximately 200,000 cords of acid wood. This, in connection with the timber to be sold by the Forest Service, would be sufficient to maintain a moderate-sized tannic-acid plant for 25 years. The Forest Service, of course, is offering for sale only the timber owned by the Government. Approximately 15,000 acres of Govrnment lands are involved, of which 10,500 are heavily timbered.

The topography is favorable for all lumbering operations and work may be carried on practically throughout the year. A privately owned standard-gauge railroad parallels the tract for some distance. Sufficient labor to operate a moderate-sized plant is said to be available from local sources.

In accordance with the usual procedure governing sales of timber on national forests the stumpage will be advertised and sold to the highest bidder. Purchasers will not be required to pay for the entire body of timber at one time, but will be allowed to make advance payments on a basis of three or four months' cut. A prospectus giving the details of the chance will be issued by the district forester in Washington and the forest supervisor at Franklin, N. C.

ACCREDITED HERDS SHOW VALUE OF TB ERADICATION

A herd of cattle accredited as free from tuberculosis and given reasonable protection from outside infection remains healthy in nearly all cases. This announcement by the Federal Bureau of Animal Industry is based on results covering retests of accredited herds. Moreover, it supports other evidence that herds become tuberculous chiefly from the presence in them of diseased animals or from association with herds of doubtful health.

The bureau's investigations included a large part of the 1,600 accredited herds and of 16,500 herds which successfully passed one tuberculin test. In the few herds where reactors were found the number in practically all cases was limited to only one animal. The investigation showed also that in over one-half of the cases, where reactors were found in herds previously tested and found free, the presence of such reactors was traceable to exposure to untested cattle or to untested cattle being added to the herd. The bureau warns all cattle owners against such exposure and risk.

Briefly, the retests showed that the tuberculin test is an effective means of detecting reactors, and when all are removed and premises disinfected the future health of the herd with respect to freedom from tuberculosis is practically assured, if care is taken to prevent infection.

Only Some Pigs Died This Time, But It Might Be Babies Next Time

They were only pigs, but the manner in which they were handled illustrates the costliness of human carelessness. The story of how they lost their lives is worth the telling because the United States Department of Agriculture believes that similar carelessness constantly endangers human lives.

The story begins with a Florida farmer who recently sent a load of hogs to market. Upon post-mortem examination by a Government inspector at the slaughterhouse where Federal meat inspection is maintained a large proportion of the swine were found badly affected with tuberculosis. To locate the source of infection responsible for the condition, the Federal Bureau of Animal Industry—which among its other duties aids States in eradicating tuberculosis—began an investigation.

Tests of the Florida farmer's live stock showed no tuberculosis among his cattle, but four of his brood sows reacted when tested, showing that probably they were diseased. Determined to find the source of this disease, the history of the hogs was investigated. The trail led to New Orleans, where it was learned that two of the sows had come from Iowa, one from Illinois, and one from Maine. The Federal inspector in charge communicated with the Iowa breeder from whom two of the sows had been secured, and who was a veterinarian. He was induced to apply the tuberculin test to his drove of hogs. There were a large number of "reactors" in the pens, all of which on post-mortem examination were found to be tuberculous. On the same farm there was a herd of cattle that had passed a tuberculin test several years before but had since been on a show circuit where they were associated with untested stock.

Upon applying a retest to find the source of infection several of the cattle reacted. When slaughtered they too disclosed lesions of tuberculosis. Here is how the malady had spread to the diseased brood sows on the Florida farm: As pigs they had been fed on the raw milk from the infected herd of cattle in Iowa.

Summing up the evidence, Dr. J. G. Fish, the Federal inspector, states: "The point I wish to make is: That the milk or by-products that produce tuberculosis in pigs would produce the same disease in babies using the same milk."

The trail of infection is now being followed to Illinois and Maine to locate and, if possible, stamp out the disease at the other sources. In the case mentioned the tuberculous stock menaced Florida. There is no way of telling what State might be endangered the next time. The United States Department of Agriculture advises the greatest care in purchasing breeding stock and it states that even then, before any animals are brought into direct contact with a healthy herd, they should be kept in quarantine until known to be free from infectious disease.

THE AIM AND VALUE OF BOYS' AND GIRLS' CLUB WORK

By E. T. Meredith, Secretary of Agriculture.

Boys' and girls' club work is one of the important features of the agricultural extension work conducted by the States Relations Service, United States Department of Agriculture, in cooperation with the State agricultural colleges and local agencies for the purpose of improving agricultural conditions and practices throughout the country. These clubs are organized to improve farm and home practices by instructing the boys in correct agricultural methods and the girls in home making; to assist them in demonstrating these methods for the improvement of the farm and home; to aid in the development of cooperation in the family and in the community; to create a more favorable attitude toward the business of farming and home making by encouraging property ownership and the feeling of partnership; and to make rural life more attractive by providing organization which tends to diminish isolation and develop leadership.

These objects are in process of attainment. Wherever club work has been pushed by our agents, larger yields have been obtained, better pigs have been raised and finer cattle, both dairy and beef, have been grown. The motto of the clubs is "To Make the Best Better." Registered animals are now common where only a few years ago they were unknown, and there is a systematic effort to call out scrub live stock and poultry. Large yields of crops have been made by club members on lands which were considered worthless, and little girls are vying with the best packers in canning and preserving fruits and vegetables, and are becoming a potent factor in helping to make the farm home more attractive and enjoyable.

The average yield per acre made by club members in the growing of field crops is two to three times as large as the average yields made in the States in which the members are located. Many people, seeing a boy or girl here and there engagd in club work, do not realize the value of the products produced by these young folks in the aggregate. In 1918, while under the stress of war and responding to an appeal made to club members in the furrows "over here" to help feed the boys in the trenches "over there," the records in the office show that these young people produced food and feed to the value of more than $20,000,000.

The money value of the products of club members is only a small part of the value of club work. Many boys and girls have had their vision of life enlarged by club membership. Many have taken and are taking college training. The agricultural colleges of the country especially have profited in enrollment from the clubs. Many boys and girls have made their own money to defray their college expenses in club activities. Many after graduation have returned to the farms or have engaged in extension work as county agents. Rural life has been greatly enriched in recent years by the trained leadership obtained from agricultural clubs. The results obtained in this work justify many times the expenditures made in securing them and appeal strongly for a larger development of this very useful work.

IMPROVE YOUR WOODLANDS BY PROPER CUTTING

Lack of proper thinning and cutting is a common cause of woodlands being unprofitable, according to a recent bulletin entitled, "Making Woodlands Profitable in the Southern States," issued by the United States Department of Agriculture. Nature usually overcrowds trees in a given space, says this publication, and so steps should be taken to give them sufficient light and soil moisture to thrive and become profitable.

By properly controlling the number of trees on a tract it is possible to increase their rate of growth and eventually their size. Except for the production of cordwood, a few large trees on a given area are usually more desirable than many small ones. If possible, valuable kinds of wood should be grown in preference to common woods, which bring lower prices. Woodlands in this country, as a rule, contain many crooked, forked, and diseased trees, which should be replaced by straight, sound ones. Soon after a cutting trees show an increased growth and the whole woodland rapidly increases in value by the elimination of inferior trees.

With an active market for cordwood and for fence posts, poles, and lumber there is every inducement to clear out the inferior trees—diseased, dying, crooked, and less valuable kinds. Right cutting also includes the removal of large, sound trees whose growth is slow, because they are nearing or have reached maturity. The cutting should be done only at a time of favorable market conditions or when building or other timber is needed on the farm. Copies of this bulletin may be had by addressing the United States Department of Agriculture, Washington, D. C.

Government Purchase of Forest Lands Will Prevent Future Timber Shortage

Further purchases by the Government of forest lands in the Southern Apalachian and White Mountains to relieve the present shortage of timber in those regions are advocated by the National Forest Reservation Commission in a report just issued, entitled "Progress of Purchase of Eastern National Forests." This commission is the body authorized to pass on timberland purchases made under the Weeks law, and is composed of the Secretaries of Agriculture, Interior, and War, and four Members of the Congress.

"The supply of spruce in the eastern United States available for paper stock is nearly exhausted," the publication states. "Eastern building material is no longer adequate fully to meet industrial demands, the future supply of hardwoods is threatened and will not be sufficient unless prompt measures are taken for maintaining the productivity of the hardwood forests."

The situation can be helped materially, says the report, by arranging that lands not suitable for agriculture—of which there are 30,000,000 acres in the eastern mountains—shall be used for growing timber. Of this 30,000,000 acres approximately 1,800,000 acres have been purchased by the Government under the provisions of the Weeks law, which authorizes the acquisition of lands on the headwaters of navigable streams for inclusion within national forests.

Additional Appropriation Needed.

Appropriations totaling $11,600,000 have already been made under the Weeks law, and the expenditure of all but about $300,000 of the amount available for purchasing lands has been authorized by the commission. Twenty-one purchase areas, with a total area of approximately 7,000,000 acres, have been designated in 9 States in the important hardwood and spruce regions of the Appalachian and White Mountains. In 17 of these, purchases have been made. Since the purchase program was developed other States, including Kentucky, have enacted legislation authorizing the acquisition of lands for national forest purposes. To carry out the purchase program as outlined by the commission an appropriation of $2,000,000 per year for a period of five years, beginning with the fiscal year 1921, has been recommended by the commission.

The average price of the 1,841,934 acres whose acquisition has been authorized by the commission is $5.26 per acre. The Government is getting good value for its money, the report states. While some of the lands purchased have been cut over and burned, but at present support a stand of young timber from which no immediate returns can be expected, others have a large amount of merchantable timber.

Lands Capable of Producing Valuable Crops.

All of the lands bought are capable of producing valuable crops of timber. During the fiscal year 1919 receipts for timber sold from the area then acquired—1,347,660 acres—amounted to $71,942 under the conservative method of cutting practiced by the Government. The timber that was sold was very largely salvage, and it is expected that the returns from timber sales will steadily increase.

In addition to the financial return, the establishment of national forests results in a decided benefit to navigable streams through the modifying influence of the forest cover on erosion, according to the report. It states that the newly created forests are being widely used for recreation by residents of the near-by cities and that they are meeting other important economic needs. Watersheds which supply domestic water to 17 municipalities are owned in whole or in part by the Government. In addition, 29 municipalities secure their water supply from lands which have not yet been acquired, but which are located within the forests. Government control assures the sanitation of such watersheds without interfering with the use of the land for timber-producing purposes.

COOPERATIVE MARKETING OF TIMBER MORE PROFITABLE

Cooperative agencies for marketing woodland products are the means whereby farmers and other small owners can secure increased returns from their timberlands, according to a new bulletin of the United States Department of Agriculture. The average farmer, it is pointed out, is at a disadvantage in disposing of his timber products to commercial buyers because usually he does not know how much timber he has or its real value, while the buyer is well informed.

Few farmers own enough timber to ship carload lots of material at one time or to go to the expense of having a careful estimate made by the timber cruisers. By combining forces, however, a number of owners having, in the aggregate, a considerable amount of timberland can afford to hire a manager who can direct the cutting and marketing of their timber.

Although farmers have organized extensively for marketing other farm produce, most of them do not appreciate that larger returns could be secured for their timber if they applied these same cooperative principles to this field. Well managed cooperative associations will make it possible for them to put their timber to the use for which it is best adapted, to secure better prices, and to provide for a continued yield by selecting trees which are ready for cutting.

A manager such as the bulletin recommends decides whether it is more desirable for the owners to market their timber through existing channels or to install new sawmills or woodworking machinery. He also keeps in touch with the best markets, creates a steady demand for the products of his association, and by shipping in carload lots obtains favorable freight rates.

The output of such an association will be lumber and other forest products, such as railroad ties, pulpwood, extract wood, fuel wood, fence posts, telephone and telegraph poles. Although it might pay to organize a cooperative association to market 5,000,000 feet of lumber, a higher rate of profit can be obtained out of tracts containing 25,000,000 feet. In general the more timber there is available the bigger opportunity there is for an association.

AMERICAN FOULBROOD OF BEES

American foulbrood is a disease of the brood of bees which is causing great losses to American beekeepers. It has existed almost since bees were first brought to North America.

It is important that the beekeeper should know whether American foulbrood or European foulbrood is in his apiary, for the two do not respond to the same treatment, according to Farmers' Bulletin 1084, Control of American Foulbrood, recently issued by the United States Department of Agriculture.

In American foulbrood control it is necessary that all combs, honey, and other materials from the inside of the hive be taken from the bees and that a chance be given them to establish themselves again on new combs. Several methods are given in this bulletin, but the underlying principle is the same in all cases.

No measures which the beekeeper may take will put his bees in such condition that they will not contract this disease, but by guarding them from infection he may save himself much worry and financial loss.

The facts about the disease on which the treatment is based are discussed in this bulletin and the treatment is described in full. The bulletin will be sent free on request.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING.

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Hessian Fly Withstands Cold.

Specialists of the United States Department of Agriculture stationed in the Middle West have determined that, in spite of the severe winter, at least three-fourths of the Hessian flies in the "flaxseed" stage overwintered successfully. Experiments have shown, also, that Hessian fly eggs exposed all night to a temperature of 9° above zero will hatch perfectly healthy maggots. The indications are, therefore, that the Hessian fly infestation this year will be very severe. A severe infestation was indicated last fall, the only hope of alleviation being that the numbers might be greatly reduced during the winter. This did not occur. Nothing can be done now toward protecting the present crop from damage, but information recently gathered by the entomologists will emphasize the necessity for the practice of control measures this fall when planting is being done for next year's crop. Control consists in late sowing, rotation of crops, plowing under of stubble, destruction of volunteer wheat, thorough preparation of the soil, the use of fertilizer, and selection and proper sowing of the best seed.

Jack Frost Raids Peach Crop.

It is said that the law of compensation works both ways—if the rich man gets his ice in the summer, the poor man gets his share in the winter. Averages of peach production appear to follow the same rule, according to the estimates just published by the Bureau of Crop Estimates, United States Department of Agriculture.

Barring the possibilities of further disaster, the commercial peach orchards of Georgia and North and South Carolina will produce fairly heavy crops. California is scheduled for a bumper crop, and several other States will not be far below their 1919 average in car-lot shipments of peaches, but these good prospects are more than offset by the frost damage inflicted upon the orchards in other States. Texas has been badly hurt, and so, also, have the Arkansas, Oklahoma, Missouri, and Tennessee orchards. The New England crop is reported ruined, and Washington, Utah, and Idaho report severe winter-killing. To some extent the prospective crop is still further diminished by the decrease in acreage devoted to commerical peach orchards.

Altogether the Bureau of Crop Estimates figures the conditions on April 1, 1920, to be about 77 per cent of normal. There is a slight decrease from this figure during the growing season, usually about 10 per cent, which will presumably reduce this early estimate to 67 per cent when the crop is harvested and the final count taken. Last year the April estimate was given as 84 per cent, and the decrease was 9 per cent during the growing season. In terms of bushels the crop last year figured 29,240,000 bushels of fruit. Allowing for the normal 10 per cent decrease in 1920, the crop this fall will be short of last year's production by about 3,000,000 bushels, giving a total of 26,461,000 bushels for the coming harvest.

Sugar Beet Production.

Heaven may temper the wind to the shorn lamb, but does not always add sweetening to the pulp of a sugar beet during a sugar famine.

Figures compiled by the Bureau of Crop Estimates show a slight falling off in the amount of sugar extracted from the sugar beets in 1919 when compared, pound for pound, with the crops of preceding years. In the United States, and including the beet crop from 850 acres in Ontario, 5,887,557 short tons of beets produced 726,451 short tons of sugar in 1919, while 5,577,506 tons of beets from the same sources in 1918 gave us 760,950 tons of sugar.

In 1919, moreover, the average production of beets per acre was 9.27 tons, while the average in 1918 was 10.01 tons.

The 1919 crop sold for $11.74 per ton of 2,000 pounds as against $10 for the 1918 crop, and the total value of the two crops was $75,420,000 and $59,494,000, respectively.

Farm Wages Not Always Understood.

Many farmers engage their employees upon a basis somewhat similar to the example given below. The figures used are cited by the United States Department of Agriculture not as average figures for the whole country, nor for any particular locality, but merely to call attention to facts often slighted by both farmer and farm employee and frequently overlooked entirely by other people.

The farmer engages a man who receives—

Monthly wages	$50.00
Use of small house, monthly renting value	10.00
Firewood, monthly value	5.00
Milk, 2 quarts daily, 6 cents a quart	3.60
Use of garden lot (¼ acre), $60 per year, monthly rate	2.00
	70.60

Upon this scale of values, often more, and seldom less, it will be seen that the farm laborer is really receiving $70.60 per month instead of $50. Yet, unless some form of contract is provided which definitely sets forth the values of these "extras," the laborer will fail to give them just consideration. Ask him what he receives and he will name the cash allowance alone. The employer, too, though more apt to calculate the value of the extra items, is still in doubt as to the real compensation he pays his men.

Values differ at different seasons. The fuel consumed in winter months would be much more than in the hot weather; milk is worth more in one month than another, and a garden plat will yield more produce to one man than to another.

A contract such as is used in the West Prussia agricultural district should be adapted for like conditions in this country. Upon this contract appears every item at its precise acknowledged value. The farmer knows what his help costs him; the farm laborer realizes his true value, and the general public is relieved of much harmful confusion by this simple, common-sense method.

Salt the Fleas.

A great many inquiries are reaching the Bureau of Entomology, United States Department of Agriculture, for methods of controlling fleas. The work of the department has shown, fortunately, that the best means of controlling fleas in most instances is very simple. Fleas usually originate in the basement of the house, or in some covered place such as woodsheds and stables, to which hogs, dogs, or other such animals have access. The remedy is to give the basement, shed, or other breeding place a thorough cleaning, burn the litter, and then sprinkle the floor or ground in the building or shed with common salt. The salt should be sprinkled thickly enough almost to cover the ground and should then be wet down with water, the specialists say. It

should not be wet sufficiently to cause it to run, however. If there are about the place any houses, cribs, or the like built on piles so that hogs and other animals can go under them, salt should be applied there. Generally speaking, it is fairly easy to determine where the fleas originate, and it is usually such a place as can be reached by the salt treatment. It may be necessary to repeat the operation two or three times at about three-day intervals.

Plan Japanese Beetle Control.

At a recent conference of officials of the United States Department of Agriculture and the New Jersey department of agriculture, held at Riverton, plans of work for the control and suppression of the Japanese beetle were thoroughly gone into. Provision has been made thoroughly to inspect and certify products found free from the insect, including greenhouse and nursery stocks, fruits, vegetables, and farm crops. While the quarantine will be rigidly enforced, it is believed that no serious interruption will result to the movement of most farm and other products from the infested territory. In control of the beetle, several methods of attack will be followed. Poisoning with sodium cyanid in water of such soils as are badly infested with the larvæ or grubs will be practiced. Several million beetles, it is believed, can be captured by sweeping infested plants with nets. A band of vegetation from one-half to one mile wide surrounding the infested area will be kept thoroughly poisoned with insecticides sprayed or dusted on the plants. To prevent accidental carriage of the beetles on automobiles and other vehicles and on pedestrians, the roadways have been cleared, by grubbing and burning of food plants of the beetle. The weed food plants will be kept down by the use of large quantities of weed-killing chemicals. Attention is being given to the introduction of parasites of the beetle from Japan. An agent of the Bureau of Entomology is already in Japan, engaged upon the work.

The officials connected with this project believe that the operations of 1920 will pretty definitely indicate what can be expected from large-scale operations in suppression of the beetle.

Active Work Against Fruit Insects.

United States Department of Agriculture reports plans completed, and work already under way in southern localities, for extensive experimental work in the control of insects affecting orchards, vineyards, nuts, and the like. Investigations of pecan insects will be concentrated at the Texas laboratory, now located at Brownwood. Particular attention will be given to perfecting remedies for the pecan weevil, the pecan nut case bearer, and related pests.

Work with peach insects is under way in Mississippi and Georgia, where further experiments are in progress in determining the comparative merits of spraying and dusting. Life-history studies of the codling moth are being continued in Delaware, the Yakima Valley in Washington, the Rogue River Valley in Oregon, and at a new laboratory in north Georgia.

The laboratory at Fresno, Calif., is devoting attention to the grape mealybug, which in recent years has become a troublesome pest of grapes. At the laboratory at Sandusky, Ohio, experiments and demonstrations are being made in control of the grape-berry moth and other grape pests of the region.

At the laboratories in Washington, additional studies of insecticides have been begun, including the study of the insecticidal constituents of plants. Group studies are under way of the arsenicals, the mineral oils, sulphur compounds, and other groups.

Better-Sires Campaign Popular.

Every mail received by the Bureau of Animal Industry, United States Department of Agriculture, shows the readiness with which farmers and animal breeders in general are cooperating in carrying out the "Better Sires—Better Stock" campaign.

The letters show that the owners of purebred sires take a generous and proper pride in the progress of the campaign in their community. One letter recently received contained the following advertisement clipped from a county newspaper published in Pennsylvania:

"DON'T BREED TO SCRUBS—FETCH YOUR BIG COWS TO VICTORY FARMS—SERVICE FREE.

"For milk: Breed to De Kol Pietje Charles Dickens. Sire: Woodcrest Urma Pietje. Dam: Daisy Le Polke De Kol 3d. (Holstien-Friesian).

"For beef: Breed to Cardington Bob Bill Sykes. Sire: Cardington Blackjack. Dam: Jennie of Olenyangy (Aberdeen-Angus).

"Will pay $25 for five-day-old heifer calves bred by either one of these sires when delivered at Victory Farms.

"———— ————, *Owner.*"

The owner of this farm explains by letter that he also maintains purebred boars and that the service of these animals is free to neighboring farms.

This is but one instance in which the owner of better sires has offered their advantages to his neighbors free of charge. The fact that the owner of the sires is willing to buy the heifer calves bred from his purebred bulls is an indication of the increased profits that may be realized by the owner of a scrub or grade herd when he has put a purebred sire at its head. It shows that the value of the progeny of a purebred sire and a grade dam is so well established in the minds of the best informed among breeders that they are willing to pay a much higher rate for this progeny than for a calf with grade parentage in both the sire and the dam. It further illustrates the rapidity of improvement in a herd which has a purebred sire at its head.

Bows of Yew for Modern Archers.

It is a far cry from long-range rifles and high-powered explosives to the bow and arrow of the American Indian. Nevertheless, bows and arrows are still used by the small boy, albeit not without sorrow to the neighbor's chickens. There is also a demand for stronger and more expensive bows for archers of mature years. Doubtless these facts account for a recent sale, on the Snoqualmie National Forest in Washington, of a quantity of yew, to be used in making bows. Although the Forest Service of the United States Department of Agriculture sells a variety of forest products for unusual uses, this is probably the first case in which the final product is to be one of the oldest and most common weapons known to the world.

The yew has long been known as the best of all bow woods. Famous English archers would have no other. Richard III ordered bowyers to make four bows of witch-hazel, ash, or elm to every one of yew, in order that the supply of this valued wood might be preserved. This is said to be one of the earliest forest regulations in England. The staves from which bows were made in those early days were seasoned for three years before being made into bows and the bows were not used for two years after being completed.

The American yew is botanically very similar to the European yew. One of the three species found in the United States grows only in Florida and is a small tree. Another is a shrub growing in the north Atlantic region, while the third occurs in the forests of the Pacific coast. It is the latter that grows in the Snoqualmie National Forest. When mature it usually is from 20 to 30 feet high and from 6 to 12 inches in diameter.

On account of its elasticity and strength the Indians of the Northwest utilized the wood of the yew for their bows and often for canoe paddles. Yew wood is also well adapted to carving and numerous attractive articles can be made from it. Not only does the grain of the wood make it possible to carve attractive designs, but the combination of red bark, white sapwood, and rose-red heartwood make especially pleasing effects possible.

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Department Yields Big Dividend To People, Says Secretary Meredith

More Than One Thousand Per Cent Returned to "Stockholders," He Says.

Emphasizing Small Leaks Likely to Discredit Great Service Rendered Whole Country—How Newspapers Can Serve Agriculture.

The Department of Agriculture makes for its stockholders—the people of the United States—a profit of several times 1,000 per cent per year on all the money invested in it; but, for the purpose of the point I wish to make, let it stand at 1,000 per cent.

As evidence that it is paying big returns I will give but a few typical items out of a large number that could be cited. We spent $250,000 establishing durum wheat in this country. The durum wheat now produced here is worth $50,000,000 a year. We spent less than $200,000 introducing a rice and establishing the industry in California. The rice crop in that State is now worth $21,000,000 a year. We spent $40,000 introducing Egyptian cotton, breeding it up and establishing the industry in the arid regions of the Southwest. The American-Egyptian cotton crop is now worth $20,000,000 a year and is increasing every year. We discovered a serum that prevents hog cholera, and its use, as demonstrated by the department, has reduced the losses from that disease by $40,000,000 a year. I could point out scores of similar things, but these are sufficient to show you that my estimate of 1,000 per cent profit is not too high.

If a private business in which you are a stockholder were putting dividends like these into your pocket, would you go around complaining because one of the employees happened to lose a pencil—saying to everybody with whom you came in contact that the management was inefficient, destroying confidence in your own business, driving your customers away, and generally doing everything in your power to deprive yourself of so remarkable a dividend?

The Loss of a Lead Pencil.

Now, there are instances of inefficiency, no doubt, in every department of the Government, just as there are in your business and many other businesses, but why should we—the stockholders—get into the habit of emphasizing the very small items of inefficiency and of overlooking the general results? There are sure to be leaks in any organization so large as the Department of Agriculture. An official of the department came to me not long ago and said that his salary was being wasted because he wasn't given responsibilities, that he was going to resign, and that he was going to make a statement in the newspapers giving that as the reason why he resigned. I asked him if he did not feel the department returned to the people $10 for every dollar expended directly for agriculture, and he said, "Yes; three or four times that amount at least." I told him I agreed with him about his salary having been wasted during the short time he was with the department. I admitted that he had not been given any responsibilities. He was not qualified for responsibilities. But I told him I did not think he ought to talk about it in the newspapers. I gave him the lead-pencil illustration—a lead pencil is about as big an item in his private business as his salary was in proportion to the Government's expenses. He could not see the point. He did give his statement to the newspapers, and he got it printed. I ask you if the papers carrying his complaint—and the only thing he did in the department that could be commended was to resign—were serving the best interests of their readers by publishing a statement designed to discredit the Government service, to shake

(*Continued on page 8.*)

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EXPORT TRADE IN PUREBREDS TO BE GIVEN IMPETUS SOON

Trade Advisers and Live-Stock Experts to Go to South America.

Conferences Will Be Held and Careful Study of Conditions There Made—Work in Interest of All Live Stock.

As a part of a plan to promote a larger export trade in purebred live stock, the United States Department of Agriculture will send two of its live-stock experts, L. B. Burk and E. Z. Russell, to South America next summer, where they will hold conferences with various agricultural societies, breeders, and business men interested in better live stock. By this means it is believed a large amount of information relating to the kind, locality, and quality of purebred live stock in this country, as well as details concerning the cost and methods of exporting animals from the United States, can be made available to South Americans. At the same time American breeders will be assisted in making contacts with interests in South America, and a careful study will be made of conditions on farms and ranches to determine, among other things, how animals which have been shipped from the United States have thrived in that country. The Federal Department's representatives will not go in the interest of any particular breed or class of live stock, but in the interest of all live stock, including dairy stock.

May Establish Permanent Offices.

The visit of these specialists will carry further the preliminary work done last year by David Harrell and H. P. Morgan, who went to South America on a similar mission.

The department also is considering establishing permanent offices in South America where definite information will be available to the breeders of that continent as well as to breeders in this country. These offices will enable the latter to ascertain quickly the character of prospective demands and prices of live stock in South American countries, but

also will assist South American breeders in securing immediate answers to their questions. A great deal of such information can be obtained only by a Government representative, since officials of the South American Governments in many instances decline to give information to practical breeders or men representing corporations.

The proposal of sending representatives to South America is the outgrowth of a trade in purebred live stock with that continent which has developed promisingly since the war. As a representative of the Federal Department, Mr. Burk accompanied a delegation of Uruguayan buyers of purebred stock on their tour of this country in 1919. These men on this tour purchased breeding animals to the value of $60,000. In January of this year they returned from South America and showed their satisfaction as to the animals bought and the service accorded them, by purchasing registered cattle at an approximate cost of $200,000.

During the visits of these men the department's representatives rendered important service by cooperating with the secretaries of various breed associations desirous of getting in touch with the visitors, and also by facilitating the shipment of the live stock purchased.

Achievements of Men to Be Sent.

Both Mr. Burk and Mr. Russell are particularly fitted by training and experience to undertake this work. Mr. Burk was reared on a live-stock farm in Missouri, graduated from Missouri Agricultural College in 1911, and has had active management of live-stock farms where registered Shorthorns, Duroc Jersey, and Poland-China hogs, saddle horses, and Jersey cattle were raised. He was instructor and associate professor in animal husbandry in the agricultural colleges of Missouri and Texas for six years and also had active charge of the college and experiment station herds of purebred hogs at the Texas Agricultural College. Since entering the service of the Bureau of Markets he has made a careful study of the purebred live-stock industry in the United States and has a wide acquaintance with leading breeders and their herds.

Mr. Russell has had more than 30 years' experience as an agriculturalist and general live-stock man. During this time he also served six years as editor of the Twentieth Century Farmer, and two years as secretary of the National Swine Growers' Association, and manager of the National Swine Show. He is especially well known as a breeder, exhibitor, and judge of purebred hogs.

Mr. Russell came to the Bureau of Animal Industry in December, 1917, to assist in the wartime campaign for increased pork production in cooperation with the United States Food Administration. As a result of that campaign the increase in production of over 15 per cent was achieved. In 1918 Mr. Russell was appointed specialist in charge of the swine investigations of the Bureau of Animal Industry, and since then has been engaged in building up a herd of representative purebred hogs at the Bureau's experimental farm near Beltsville, Md. He also has shared in developing new supplies of hog feed, especially fisheries by-products, and in the reconstruction of the hog industry since the signing of the armistice.

LOUISIANA SUGAR OUTPUT LOWEST IN RECENT YEARS

Louisiana produced in 1919 only 242,000,000 pounds of sugar, as compared with 561,800,000 in 1918, 487,200,000 in 1917, and 607,800,000 in 1916. The 22 sugar parishes produced only 2,510,000 gallons of sirup, as compared with 10,793,000 in 1918 and 5,652,000 in 1917. The entire State produced in 1919 only 3,672,000 gallons of sirup. The molasses production for 1919 was 12,991,000 gallons as compared with 28,049,000 in 1918, 30,728,000 in 1917, and 26,154,000 in 1916. These figures were announced to-day by the Bureau of Crop Estimates, United States Department of Agriculture.

The Louisiana sugar cane crop of 1919 was one of the shortest since the keeping of records was begun. The trouble began with poor seed, and was augmented by unfavorable weather and scarcity of labor, resulting in uneven stands, grassy fields, and low yields.

SPREAD OF WATERMELON DISEASE.

There are numerous ways in which the spread of watermelon anthracnose may be accomplished say specialists of the United States Department of Agriculture. Spores may be spattered by raindrops to leaves near-by or washed to the ground, where they are carried along to other plants by drainage water. Laborers often disseminate the disease, particularly if culls are removed or melons harvested while the vines are wet with dew or rain. Under such circumstances, spores are likely to be carried on hands and clothing from diseased vines to healthy ones. If spores lodge on the melon itself, the characteristic anthracnose lesions form.

SECRETARY MEREDITH URGES CITY MEN TO HELP FARMERS

Business Men and Students Should Aid to Keep Production Normal

Shortage of Hired Farm Labor Threatens Curtailment of Food Production, He Says

With a shortage of hired farm labor, as acute as in 1918, threatening to curtail food production on American farms, E. T. Meredith, Secretary of Agriculture, has issued an appeal to city men, college students, and others to spend their vacations working on farms, particularly as helpers in harvest fields.

Reports secured by the Federal department from its representatives in practically every State in the Union show that the supply of hired farm labor in this country is only about 72 per cent of the normal supply compared with approximately 84 per cent of a normal supply a year ago. This year's shortage is almost exactly the same as that of two years ago, when large numbers of men were in military service.

The present shortage has arisen in spite of the fact that farm wages are 15 to 25 per cent higher than last year. The situation unremedied can not fail to have an unfavorable effect on production according to the United States Department of Agriculture, and will tend to prevent any reduction in the prices of farm products. While the total acreage undoubtedly will be reduced as a result of the present situation, it will not be in as large proportion as the reduction in the labor supply, because the farmers with their families are exerting themselves to the utmost to overcome their handicap. Cultivation this year will be less intensive than formerly. More land will be put into grass and such other crops as require a minimum of labor, it is said, and the tilled fields will be less intensely cultivated.

Appeal to Business Men.

Secretary Meredith calls on all business men and students to spend their summer holidays helping relieve the present situation and so aid in combating high living costs. In making this appeal it is recognized that, at the outset at least, such labor is not as efficient as experienced farm labor, but the excellent results secured in 1918, when city men in large numbers aided the farmers, leaves no doubt as to the success of the present drive if the men will respond.

The United States Department of Agriculture was represented by Asher Hobson

at the meeting of the National Farm Labor Conference held in Kansas City April 16, and the Office of Farm Management, of which Mr. Hobson is assistant chief, is laying plans looking toward offering effective aid in dealing with the farm labor situation, particularly in the harvest season. It is expected that definite announcement regarding work along this line will be made in the near future. Until other provision has been made by the department all persons interested in finding work on farms should write to the directors of agricultural extension at the agricultural colleges in the various States. These directors are prepared to supply the names of county agents having farmers in their respective counties who need farm labor. By this method anyone desiring to help on a farm can get in direct communication with the farmer.

The following comments from representatives of the United States Department of Agriculture and others intimately familiar with conditions in their respective localities summarize the situation:

From Connecticut.—"There is general complaint of scarcity of farm labor in Connecticut. It is estimated that the farms of this State would use at prevailing wages 3,500 more farm laborers than we have at present. Of these approximately 2,500 would be needed for the summer only in the tobacco and market garden sections, and 1,000 would be used on the general farms for year-around work. With the lower wage, but maintained commodity prices, a larger number of men would be used. There is special difficulty in getting day help for short periods. Farm wages show an advance of 15 to 25 per cent over last year."

Local Needs.

From Indiana.—"One farmer in Elkhart County wrote us that there were 15 farms in 2 townships that were without tenants or would soon be without tenants. This is merely an example of numerous reports of this kind that are continually reaching us * * *. In many cases farmers are reporting that they are not planning on putting out as large an acreage of cultivated crops if they can leave some land in grass and pasture live stock on it."

From Illinois.—"Two representatives have been out in the field and have come across a number of instances where farm help seems to be practically impossible to get. In general, farmers in Champaign County and other counties are paying from $50 to $65 per month for either married or single men, with the usual perquisites, and farmers in Dekalb County are paying from $60 to $75 per month."

From Iowa.—"The farm labor situation is not especially bright. Prices on farm products have started to decline and bid fair to decline still further. At the same time industrial plants are able to pay high enough prices so that they can attract the men from the farm. Even though the net saving might be no greater in town, living conditions appear to be more congenial, and the tendency is to desert the farms."

From Massachusetts.—"We find that the farm labor situation in Massachusetts is very bad indeed. Competition of manufacturing industry with agriculture is very intense. The commissioner of agriculture estimates a 25 per cent shortage in farm labor. The Worcester County Farm Bureau, serving the largest county in the State, estimates a decreased production of 20 per cent, due to lack of help."

From Minnesota.—"The manager of the employment office conducted jointly by the United States Department of Labor and the State department of labor reports that farmers for the most part are offering $70 to $75 per month plus board and washing, but that it is somewhat difficult to supply the demand at that figure. He reports that good men can be secured at $80 per month."

From Ohio.—"Near the larger manufacturing cities of the State, such as Akron, Youngstown, and Cleveland, the farm labor situation is especially serious. Many farmers are paying up to $100 per month, with privileges, for men in that section of the State. Very little good help can be secured at much less than $75 or $80. Many farmers in southwestern Ohio are cutting down their acreage on account of labor shortage."

From Pennsylvania.—"We consider our farm-labor situation in this State the most serious that it has ever been, even more than during the war. One of the contributing causes seems to be the high wages paid in industries and cities. A number of farmers in Cambria County paid $75 per month during the war, even during the winter, and recently their men quit. * * * The dairy farmers are especially hard hit. * * * The big tendency of the farmers of to-day seems to be to cut down their farms to just what they can handle themselves with the aid of the wife and small children. As soon as the children are large enough they follow the same trail that the hired men took."

From Rhode Island.—"Our farmers are finding the labor situation more serious than at any time in the recollection of farmers now living. Manufacturing industries are paying so high for labor that the farmers are afraid to compete."

From Wisconsin.—"In connection with meetings which I have attended during the last four to six weeks I have found that the attitude of farmers almost invariably has been that they would do what they could themselves, with their families, but they do not feel justified under existing conditions in hiring this high-priced labor. One man told me he was going to reduce his actual crop acreage by about 20 per cent, reverting to the situation that existed on his farm prior to the war."

While the great majority of reports show the farm-labor situation to be unfavorable a few correspondents report that their States will be able to continue production at about the normal basis. In Idaho, for example, there is no apparent labor shortage and county agents anticipate no shortage until haying season. Reports from different parts of Nebraska indicate that the farm-labor supply is being fairly well met. The usual demand for help during the harvesting and threshing seasons is anticipated.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended April 24, 1920:

Prickly Pear as Stock Feed. Farmers' Bulletin 1072.

Prairie Rice Culture. Farmers' Bulletin 1092.

The work of the San Antonio Experiment Farm in 1918. Department Circular 73.

Production of Lumber, Lath, and Shingles in 1918. (Professional Paper) Department Bulletin 845.

Copies of these Publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention make your request definite by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

NOW USE "SNAPS AND BOLLIES."

"Snaps and bollies" are a new addition to the harvested cotton crop, the utilization of which seems to be due to the high prices of cotton. Their fiber is poor in grade, yet the number of the running bales of this description of cotton in 1917 was 4.9 per cent of the bales of the entire crop, 1.8 per cent in 1918, and 5.2 per cent in 1919.

Use of Great Northwest Forests Urged To Increase Supplies of Newsprint Paper

Greater use of the vast forest resources of the Pacific Northwest and Alaska, and the growing of much more timber in New England and the Lake States, were advocated by E. T. Meredith, Secretary of Agriculture, in a letter to the American Pulp & Paper Association read at a meeting of that body which closed in New York City April 15. Such a program, the Secretary said, will promote a permanent solution of the newsprint problem and is in accord with constructive measures now being advocated, including the proposed Poindexter pulp survey provided for in a bill now pending in the Senate.

Essentials in this program, the Secretary said, were the continuation of technical investigational work such as the Forest Service now carries on and contemplates, and adequate support of the Service's fire protection and other activities. The Secretary's letter expressed his regret at being unable to accept the invitation to address the association and was read by Carlile P. Winslow, Director of the Forest Products Laboratory, who represented the Department of Agriculture at this gathering.

"While the work of the Forest Service already deals with many problems of the industry, it should be materially extended and could, with advantage to the public as well as to the industry, cover a wide range of problems and activities from the growing of pulp timber to the many difficult technical questions involved in pulp and paper manufacture," said Mr. Meredith in his letter, an abstract of which follows:

Faces Most Critical Situation.

"The United States is to-day facing the most critical pulp and paper situations in its history. Of these the newsprint situation is the most serious. Present demands, abnormal though they may seem, are merely an incident in the rapidly growing normal demand for newsprint paper.

"To-day we are dependent upon other countries for the equivalent of two-thirds of the pulpwood, pulp, or newsprint which goes into American newspapers. Our newsprint industry is concentrated largely in New England, New York, and the Lake States. I am told that 60 per cent of the pulp and paper concerns in New York have no stumpage of their ayn, and that less than five have enough is England for continuous future operaexhibitohe predicted life of the industry in New York, New Hampshire, and even in Maine, where the great bulk of our eastern pulpwood still remains, is alarmingly short.

"We have, on the other hand, large quantities of suitable newsprint woods in the Pacific Northwest and in Alaska. The annual growth of timber on the national forests of southeastern Alaska alone would supply half of our present American newsprint requirements. Here the industry is undeveloped.

"A far greater degree of independence in news-print manufacture can be accomplished by two measures—the development of the industry in the Pacific Northwest and in Alaska, and the large-scale growing of timber in New England and the Lake States. Both of these measures would be greatly stimulated by the passage of the Poindexter pulp-survey bill now pending in the Senate. A pulp-wood survey would secure the facts on which a sound development of the industry in the Northwest and Alaska could be based, and it would also afford a basis for the production of pulp timber in the Lake States and in the Northeast.

Investigative Work Needed.

"Your association has urged the purchase by the Government of large areas suitable for the growing of pulp woods. The Government has made a beginning in this direction during the past decade. In New Hampshire and Maine an area of about 362,000 acres has been acquired admirably adapted for this purpose. This area should be greatly enlarged to include much of the mountain region in New Hampshire, Maine, and Vermont.

"We already have some technical knowledge of the best methods for growing the pulp timbers of the Northeast and the Lake States—enough to begin intelligently—but a great deal of investigative work remains to be done. If the pulp industry of the Northeast is to be perpetuated in anything approximating its present size, the entire forest area of the region must be utilized to the limit of its productive capacity. This is hardly less true of the Lake States. Forest experiment stations alone will in any reasonable time furnish the required knowledge of the best methods of cutting, planting, production, and the various other steps in such intensive timber growing. Bills now pending in both the Senate and House of Representatives provide for experiment stations on the White Mountain National Forest in New England and in Minnesota.

Protection of Forests From Fire.

"Protection of forests from fire is perhaps the most important single requirement in the growing of timber. Twenty-four States are receiving cooperation. These States expend yearly for fire protection upward of $625,000, and private owners of forest land within their borders expend in normal years approximately a like amount. The Federal appropriation is but $100,000, which is entirely inadequate. This amount has remained unchanged since 1915, in spite of the fact that the number of cooperating States has increased from 18 to 24, and the cost of the work has practically doubled. The national policy of forestry advocated by the Forest Service contemplates a large extension of such cooperative fire protection. Not less than $500,000 is required to meet the needs of this situation adequately. Yet the present appropriation is but $100,000, and there is even danger of its being reduced.

"The Forest Service is conducting at its Forest Products Laboratory work of very great and immediate importance to the pulp and paper manufacturer. Limited though such work is, it has already covered a large field in the suitability of various American woods for the different kinds of pulp, and incidentally has developed information of great importance on the technique of the various pulp-making processes. Along a limited number of other lines it has also been possible to make a beginning, as, for example, through your cooperation, on the causes of and remedies for the molding and decay of pulp. The work already under way should be very materially expanded, and there is a wide range of other subjects on which intensive investigations would benefit both the public and the pulp and paper industry."

REARING CHICKENS WITH HENS.

Sitting hens should be confined to slightly darkened nests at hatching time and not disturbed unless they step on or pick their chickens when hatching, in which case the chickens should be removed as soon as dry, in a basket lined with flannel or some other warm material, and kept near a fire until all the eggs are hatched; or the eggs may be removed and placed under a quieter hen whose eggs are hatching at the same time.

Prairie rice constituted approximately 75 per cent of the 40,424,000 bushels of rice produced in the United States in 1918.

Pink Bollworm Has Inflicted Tremendous Damage on Cotton of Other Countries

There is a tendency on the part of the persons directly interested in opposing the pink bollworm work in Texas to deny or minimize the losses which are occasioned by this insect in foreign countries. A statement prepared by specialists in the United States Department of Agriculture, indicates the nature and amount of such losses based on official records. The pink bollworm reduces not only the yield of lint but affects also the value of the seed—infested seed being lighter in weight, the oil produced from it of darker color and lower value and the yield lessened by about 20 per cent.

The most accurate estimate of losses occasioned by the pink bollworm are those issued in official reports from Egypt and Brazil. A comprehensive report of such losses was issued by the Egyptian Department of Agriculture in 1917. This report, based on the examination of over 100,000 bolls, indicates a percentage of infestation of green bolls of 10 per cent in July, 75 per cent in September, and a maximum of 89 per cent in October. It indicates further that from 25 to 50 per cent of the bolls in August and September, which would have produced a considerable element of the crop, were attacked and either destroyed or rendered pratically valueless. These figures also illustrate the rapid increase of the insect as the season advances in a region where it has had time to become fully established.

Egyptian Losses Reach 20 Per Cent.

The latest data on losses in Egypt are those given in the Bulletin of Entomological Research for July, 1919, published by the Imperial Bureau of Entomology of Great Britain. It is exhaustive and fully confirms the earlier estimate of losses, placing it at from 11 to 16 per cent of the first picking, from 17 to 20 per cent of the second picking. The method of control adopted eliminates the third picking. This method of control adopted by the Egyptian Department of Agriculture is a very strenuous program and one much too expensive for general adoption in this country with its greater labor costs. In spite of such control, involving the destruction of all of the standing crop fairly early in the autumn and the disinfection and supervision of all seed for planting, the Government estimates indicate that there is still a loss due to this insect of approximately 20 per cent of the crop.

The minister of agriculture of Brazil has published a summary of results based on a careful estimate of damage to the cotton crop caused by the pink bollworm in the principal cotton-producing States of that Republic. The money value of these losses, which run from 30 per cent to 66⅔ per cent of the crop, is indicated in the following table:

Brazilian State.	American currency.
Maranhac	$750,000
Piauhy	500,000
Ceara	10,000,000
Rio Grande de Norte	2,500,000
Parahyba	5,925,000
Pernambuco	5,750,000
Alagoas	1,575,000

A bulletin recently issued by the National Society of Agriculture of Brazil contains a note to the effect that the losses from the pink bollworm, presumably to the crop of 1918, amounted to 80 per cent of the crop in the States of Rio Grande de Norte and Parahyba.

30 Per Cent Loss in Laguna.

The injury caused by the pink bollworm in the Laguna, the principal cotton-producing area in Mexico, was investigated in 1917 by a joint commission of Mexican and American experts. The estimated loss for that year was not less than 30 per cent of the crop, involving substantially a total loss of the second crop which, in that district, is a very important element of the total annual yield. Individual fields indicated losses of upwards of 50 per cent of the crop. The character and percentage of losses in this district have also been studied by experts of this department in connection with the crops of 1918 and 1919. These studies have indicated similar losses for these two years involving as before all of the second or top crop. As indicating the amount of infestation toward the end of the season of 1919, 100 mature and unopened bolls were picked at random in an average field, and an examination showed that every boll was infested and some 900 pink bollworm larvæ were taken from them.

In the Hawaiian Islands a very promising cotton industry has been practically annihilated by this insect.

Accurate figures as to losses in China have not been received, but that the insect is on the increase there has been indicated by recent studies of the cotton crop of China by agricultural explorers of this department.

U. S. Would Fare No Better.

There is no reason to anticipate that the United States would be any better off than any of these other countries should this insect become widespread and fully established here. On the other hand, cotton growers in this country would have the additional disadvantage of the cotton-boll weevil which does not occur in any of the competing cotton-producing countries of the world other than Mexico.

The possibility of damage from this insect in this country is further indicated by the similarity of climate obtaining in the Laguna and in the central and northern ranges of cotton culture in China to that of our Southern States. This possibility is emphasized also by the actual abundance which this pest had reached in the worst infested fields in southeastern Texas in 1917, and in the worst infested fields in Cameron Parish in 1919—an abundance which had by no means reached its maximum but was yet sufficient to have occasioned a considerable percentage of loss to the crop. For example, in the worst attacked fields referred to in 1917 and 1919, approximately 75 per cent of the late and immature bolls were infested.

RICE CULTURE.

Rice produces its largest yields on clay soils that are not too deficient in organic matter, says the United States Department of Agriculture. The land selected for rice culture should lie in level tracts that can be cheaply drained.

The crop requires an abundant and always available supply of fresh water, and to obtain good yields of high-grade rice ample drainage facilities must be provided.

The surface soil of the seed bed should be loose and finely pulverized to a depth of at least 2 inches.

The field levees should be low, broad, and permanent and constructed on contour lines at distances which will hold the water at an average depth of 5 inches. They also should be seeded to rice. This will increase the cultivated area and leave no uncultivated strips in the field for the growth of weeds.

The harvested rice should be put into strongly built shocks that should be well capped to protect the grain from the sun as well as from the rain. Thrashing should not be done until the rice has remained in the shock for at least two weeks.

Weekly News Letter

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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NEW GRAIN-SAMPLING INVENTION TAKES PLACE OF COSTLY DEVICE

A device with which a sample of grain, to be used in grading a given lot, can be evenly divided so that one-half will be as representative as the whole original sample, has been designed and patented by the United States Department of Agriculture, and any one in the United States is free to make and use it without the payment of a royalty.

A representative sample of a given lot or shipment of grain which is secured by means of a probe, usually has to be divided into smaller portions for one or more of the tests to be applied in determining its grade. Haphazard reduction of the size of the sample has been found wholly unreliable, and consequently the device known as a Modified Boerner Sampler has recently been put out by the Bureau of Markets, of the United States Department of Agriculture. It is similar in principle to a sampler designed by the bureau a year or two ago, but is so designed that it can easily be constructed of block tin or brass by any tinsmith at about one-third the cost of the original.

The sampler is cylindrical and stands about 30 inches high. The sample to be halved is poured into a hopper at the top, which is emptied by pulling a lever that removes a cap over the lower end of the hopper. As the grain flows downward it strikes the apex of a baffle, in the form of a cone.

Encircling the base of this cone are a series of small chutes whose distance apart is exactly the width of these openings. Half of the grain flows in these chutes and half between them. The latter portion flows directly into the uppermost of two pans placed one above the other at the base of the sampler. The half falling into the chutes is diverted into a funnel, the lower end of which leads to a protected opening in the center of the upper pan, thereby permitting this half of the grain to flow into the lower pan. In this fashion the original sample is evenly divided into two parts, one of which is certain to be as representative of the original lot as is the other.

One of the duties of the Bureau of Markets, United States Department of Agriculture, is to administer the United States grain-standards act, and because it desires to make standard equipment for grain grading easily obtainable by all dealers, country as well as city, the bureau has devised this comparatively inexpensive apparatus to take the place of the more expensive Boerner sampling device.

The sampler and a few other pieces of apparatus are all that are required for grading grain, according to practice recommended by the United States Department of Agriculture.

ARSENATE OF LEAD SPRAY CONTROLS THE OAK WORM

The live oak and the valley oak, which are characteristic of the landscape of central California, often are stripped of their leaves by a dark-striped worm which is the young stage of a light-brown moth. Besides stripping the trees of their leaves and making the owner think that they are dead, the worm crawls on lawns, walks, fences, and into houses, swimming pools, etc., becoming a general nuisance.

Two generations of the pest occur during the year. The worms are most noticeable during April and May and again in August and September; the moths, during June and July and again in October and November.

The best method of control is to spray the worm-infested trees with a mixture of 3 to 5 pounds of arsenate of lead paste dissolved in 50 gallons of water.

This should be done while the worms are small. The live oaks should be sprayed in April and again, if necessary, about the first of August, when the deciduous oaks are sprayed.

Farmers' Bulletin 1076, "California Oak Worm," describes and illustrates the worm and its work, tells about its habits and natural enemies, and explains the methods of control. The bulletin will be sent free on request to the United States Department of Agriculture, Washington, D. C.

NEW POISONOUS PLANT FOUND; DANGEROUS TO GRAZING STOCK

A plant of the pea family, known to botanists as the *astragalus tetrapterus*, growing in the foothills of southern Utah and western Nevada, has been found to be poisonous to cattle and sheep. Further search may indicate a wider range of growth. The United States Department of Agriculture, which has been making a preliminary investigation of the effects of this plant, considers it a sufficient menace to warrant a preliminary warning.

The plant occurs in scattered patches, never in large quantities as is the case with some of the recognized loco plants. It blooms early in June and generally dries up later in the summer. It is a perennial leguminous plant belonging to the same family as the locoes, alfalfa, etc. It stands from 1 to 2 feet high. It has linear leaves, small and rather inconspicuous flowers of a light purple color, and peculiar pods possessing four wings—a feature which makes identification rather easy. Early in the season before new pods are formed those of the preceding year ordinarily can be found on the old plants.

Apparently the symptoms caused by eating this poisonous weed are not especially characteristic. The animal affected staggers as it walks, the weakness being more pronounced in the hind legs. In the case of a steer there were mild spasms with violent expirations. In a sheep, which was killed by eating the plant, there was nausea and an excessive flow of saliva in addition to depression and weakness.

At this stage of the investigation no advice can be given as to the treatment of poisoned animals, the Federal scientists state. Stockmen should recognize, however, that the plant is injurious to cattle and sheep, and probably also to horses. When other forage is lacking the eating of this plant in large quantities may cause serious losses. If a heavily grazed range where the plant is abundant is used, it is reasonable to expect some deaths among the animals. Those becoming affected should be removed to where they can get abundant feed. Probably alfalfa pasture is particularly desirable.

That stockmen and others interested in this question may be able to identify the plant definitely, the Department of Agriculture has published an illustrated Department Circular, No. 81, copies of which may be had by writing to the Department, Washington, D. C.

"Pure Food" Law Offenders Punished—Misbranded Goods Seized and Destroyed

Fifty food and drug cases are reported as having been terminated in the Federal courts in a recent Service and Regulatory Announcement Supplement, No. 64, of the Bureau of Chemistry, United States Department of Agriculture. The charges of the Government were upheld in 49 of the cases, but in one seizure action the decision of the court was in favor of the claimant of the goods.

Ten actions were based on the adulteration of tomato products, such as catsup, purée, pulp, paste, and the like. The most frequent charge was that of decomposition resulting from the use of moldy or rotten tomatoes in preparing the products. The specialists of the Bureau of Chemistry have given a great deal of attention to the improvement of tomato products. Not only have a large number of prosecutions and seizures been made, but experimental work and educational campaigns have been conducted to aid the packers in developing methods to eliminate all spoiled tomatoes. There has been a marked improvement in the quality of such products, but some packers, either as the result of carelessness or from a deliberate disregard of the requirements of the law, still occasionally use tomatoes unfit for food.

Eleven Actions on Stock Feed.

Stock feed made from cottonseed meal or cake was the basis of 11 actions, the most frequent charge being that of misbranding, because of statements on the labels claiming a higher percentage of protein than was actually present in the feed. Since the percentage of protein present in a stock feed is one of the factors in fixing the price, this form of misbranding results in the feed being sold for a higher price than its feeding value warrants. It is also misleading to the stock raiser in determining a proper feeding ration.

Canned salmon was the basis of four seizures. Spoilage of the salmon was the charge made in each seizure. In three of the cases the court ordered the salmon destroyed, while in one case the salmon was released for use in the manufacture of fertilizer. Investigations have shown that some canners of salmon do not always take proper sanitary methods in putting up their product. Studies by the specialists of the Bureau of Chemistry to improve the methods of packing salmon in order to prevent contamination are under way.

Fined $400 for Misbranded Vinegar.

Other prosecutions and seizures covered by the notices of judgment include a shipment of sardines, which were destroyed because they consisted in part of filthy, decomposed, and putrid animal matter, and three shipments of olive oil adulterated with cottonseed oil. An artificial vinegar labeled as cider vinegar resulted in the party responsible for the violation being fined $400. One shipper who failed to appear to defend himself on the charge of adding water to milk was fined $200 and costs. A shipment of milk from which part of the butter fat had been extracted resulted in the party responsible being fined $10 and costs. A plea of nolo contendere was made in answer to the charge by the Government of shipping frozen eggs composed in part of filthy, decomposed, and putrid animal matter and a fine of $50 imposed by the court. A shipment of decomposed apple butter was destroyed. Two shipments of soaked ripe lima beans which were sold as green lima beans were seized, as was a shipment of gelatin, consisting partly of glue and containing copper and zinc.

Seven actions under the Food and Drugs Act were based on the charge of adulteration and misbranding of proprietary medicines. Fines ranging from $10 to $100 were imposed in these cases, the charge being in the main that there were false and fraudulent claims as to the curative powers of the preparations. Three prosecutions were based on the misbranding or adulteration of mineral waters which were recommended by the proprietors for the treatment of various diseases. In one of these cases, in which the defendant entered a plea of guilty, a nominal fine of only 1 cent and costs was imposed by the court.

Charges of short weight were sustained against shipments of macaroni and spaghetti. Short weight was also established in one shipment of olive oil.

BIRD TREATY CONSTITUTIONAL.

A decision of widespread interest to sportsmen and others affecting the protection of migratory birds was rendered by the United States Supreme Court on April 19, when it sustained the constitutionality of the migratory bird treaty between the United States and Great Britain for the protection of migratory birds and the act of Congress to give it effect. This law is administered by the Biological Survey, United States Department of Agriculture.

In March, 1919, the State of Missouri filed suit in the United States District Court for the Western District of Missouri against Ray P. Holland, a United States game warden, for the purpose of securing a restraining order prohibiting Federal wardens from enforcing the migratory bird treaty act in that State. The validity of the treaty and the act was upheld in an opinion rendered by Judge Arba S. Van Valkenburgh, of the Western District of Missouri, on July 2, 1919. The case was appealed to the Supreme Court of the United States, which has affirmed the opinion of the lower court.

MUCH CRUSHED ROCK NEEDED.

The proposed road-building program in Minnesota this year will require about 667,000 tons of crushed rock or gravel, or nearly 20,000 carloads of aggregate, according to information secured by the Bureau of Public Roads, United States Department of Agriculture. The figures give some idea of the magnitude of the road-building program now being carried on in many States. Largely on account of a shortage of crushed stone or gravel 58 miles of road which were to have been built in 1919 were not completed. These roads are to be completed this year, while about 180 miles of new construction requiring crushed rock or gravel has been authorized. This makes a mileage of 250 scheduled for 1920.

FEEDING YOUNG CHICKENS.

Young chickens should be fed from three to five times daily, depending upon one's experience in feeding, says the United States Department of Agriculture. Undoubtedly chickens can be grown faster by feeding five times daily than by feeding three times daily, but it should be borne in mind that more harm can be done to the young chickens by overfeeding than by underfeeding, and at no time should they be fed more than barely to satisfy their appetites and to keep them exercising, except at the evening or last meal, when they should be given all they will eat. Great care must be exercised not to overfeed young chicks that are confined, as leg weakness is apt to result.

DEPARTMENT YIELDS BIG DIVIDENDS TO PEOPLE

(*Continued from page 1.*)

their confidence in the Government, in a department paying many times 1,000 per cent per year. Is it well to emphasize small inefficiencies and thereby discredit the whole?

There will always be unfair critics. Every department and every institution has them. But if we lend them our newspapers to use as sounding boards it is mighty poor advertising for our Government.

Criticism Unfair—Sometimes Partisan.

And that, after all, is exactly the point—our Government. It is not the government of any class. The Department of Agriculture—the branch of our Government to which I am devoting my time—belongs equally to all the people in this country. Sometimes the criticism of the Government is made because it has news value. Sometimes it is partisan. In the business of government one group of stockholders or the other—that is, one or the other of the great political parties in national affairs—has control, that is, selects the officers for a term of years. Suppose we belong to the group that is not in control. Just the same, we are stockholders in the enterprise. We believe, of course, that our group would run the business a little better than the other group. But if, in the effort to gain control for our group, we indulge in destructive criticism until we have shaken the faith of the people in the Government, discredited the department until the citizens it is designed especially to serve lose faith in its judgment, in its purposes—in other words—until you have done more damage to the business than we can make good during the time we may be in control, we have done a lasting injury to everybody—our party and especially our country.

I know it is a perfectly natural thing for all of us, when a party other than the one to which we belong is in control, to take the ammunition furnished by the complainers, put it in our campaign guns and fire it at our own governmental institutions. But it is a temptation that, as good Americans, we ought to resist. We are all interested, I know, in having the Department of Agriculture, for example, give the most efficient service to as great a number of the people of this country as possible, regardless of what political party may be in power in national affairs. I am simply trying to point out to you that, by unwarranted and destructive criticism, we may contribute to impairing its efficiency, or the efficiency of any other department, in the hands of either party. Sometimes we forget for the moment that parties are designed to help the Government, and act as though we were perfectly justified in tearing down the Government—or any particular department—if in doing so, we help our own party or shake the faith of the people in the opposition party.

No Politics in Department.

I want to tell you in all seriousness that there is no politics in the Department of Agriculture. The only persons in the department at present who are not in the civil service are myself and the Chief of the Weather Bureau. The two assistant secretaryships are not under civil service, but both of them at this time are vacant. It is my desire to see one of those places filled by a Democrat and the other by a Republican, so that, no matter which way the forthcoming election goes, there will be at least one administrative official in the department who has had contact with the work of all the different branches.

The department is made up of an earnest, able lot of men who are striving to serve all the people of this country—the producers of farm products and the consumers of farm products alike. Every one of them heartily welcomes constructive criticism of his work. But we realize that, with the exception of myself, the men who are there now in responsible positions will, in all probability, be there in responsible positions under the next administration, whether it be Democratic or Republican, and certainly it is desirable that the department shall have the confidence and respect of the people as a whole, so that the 21,000 members of the department may retain their effectiveness as public servants.

There is no group of men in the United States to whom I would rather convey this conception of the situation than to you men, because there are few other groups who could do so much toward putting it into execution. Let us in our columns have all the constructive criticism possible, but not destructive or unjust criticism, and if there is a way of correcting any faults that may exist in this business of ours, let us do it without destroying the business itself.

I want to remind you of another way in which you can help the country by helping agriculture. I have suggested a thing that I wish you would not do. Now let me tell you a thing that I would be glad to see you do.

Prosperity, both national and local, depends upon three things—business, labor, and agriculture. Business and labor usually have their day in court, their column of type whenever the occasion demands it. Agriculture, the one without which the other two could not exist, is not always given the consideration it deserves.

If a bill is pending in the legislature, for instance, that is inimical to agriculture, it should have the spotlight of publicity turned on it just as a vicious franchise bill would have. If the farmers are making an effort to secure some legislation that they n[illegible], it should be discussed in the daily press, just as a meritorious public service measure would be. Your newspaper ought to see that these things are done, not alone because it is a matter of even-handed justice, not alone because the prosperity of the Nation depends upon the agriculture of the country, but because the prosperity of your city depends upon the agriculture outside your corporation limits.

Editors Asked to Aid Agriculture.

I do not believe the editorial columns are devoted so largely to matters other than agriculture because of any lack of interest in agriculture, but rather because you are closer to business, you are interested in politics, your customers are business men. The business men suggest and expect discussion of matters having to do with business. It is not unfair of them, and I am not suggesting any undue influence. I only wish to point out that many times the farmers are not in position to get their views fully before the public or effectively to protect their interests. Check over your editorial columns some time for a month past and see what proportion of your discussion has been given to this interest upon which all others rest, this interest that is largely unorganized and unrepresented. Consider if, in your own communities, you can not well scan every bill, every proposal, every situation, with a view to learn whether agriculture would be affected adversely by it, and if so, discuss it in your columns; or if it is a reasonable, just aid to agriculture, give it your support—otherwise it may not receive proper consideration.

The "product" of the Department of Agriculture is service. And it is a service free to all the people—the people in the cities as well as the people on the farms. I have not the time to tell you of it in detail, but I do hope to give you some idea of the importance and the size of the organization.

In the first place, we have 21,000 employees, something over 4,000 of them in Washington and 17,000 throughout the United States. The 17,000 come in contact day after day with the farmers and with the business men throughout the

country. They have to do with the county agent work, with the eradication of diseases among live stock, plant diseases, insect pests, market reporting, weather service, the protection of the forests, and thousands of other activities.

Small Salaries.

The men and women in the Department of Agriculture, taking them all together, work harder than almost any similar number of men and women that could be found in one establishment anywhere in the country. Many of them are staying on in the face of high living costs, and most of them are receiving smaller salaries than would be paid them if they left the Government and secured private employment. A number of them who have been offered better salaries and have declined have said: "In spite of the fact that living is high in Washington and salaries are low we are going to stay in the positions where we can give the greatest service."

If I add myself to the 4,000 men and women in the department in Washington there will then be 4,001 of us. If I am as earnest and as efficient as they are I will add one-fortieth of 1 per cent to the total of the work done, and at that I will be rendering a service worthy of any man. But I should like to be more effective than that, and I believe I see one way in which it may be done. I am trying to make of myself a sort of sales manager for the product that the Department of Agriculture turns out. That product is "service" not only to the millions of farmers and wives of farmers and children of farmers, but to all the people of the country. If I can sell this product—if I can increase by 5 per cent or 50 per cent or any other per cent the number of people who are taking advantage of the services that the Department of Agriculture offers—then I shall feel I have increased the effectiveness of all by that degree. In other words, I can be most effective by increasing the "customers" of the department, getting more farmers and others to make use of the service offered, and bringing those already using the service to use it to a still greater extent.

These 4,000 men and women in Washington, together with the 17,000 others who are out through the country, are working in order to accomplish for the farmers and the farmers' wives and for consumers something that they could not accomplish for themselves—some things that require so much time and frequently so much money that an individual farmer or farm family could not think of undertaking them. Sometimes an investigation or experiment requires many years of hard, patient, unceasing labor before the point that is of benefit to the public can be brought out. I have in mind a scientist in the department who, for the past four or five years, has worked literally day and night on a problem that is of the utmost importance to plant growth of every kind. He has almost worn himself out at it. But he has discovered a great principle—a principle that will be developing in its application to farming for the next hundred years. And he gets nothing out of it, in addition to a small salary, except the satisfaction of knowing that the farmers may be helped in their work.

I spoke a while ago of the discovery of the hog-cholera serum that has reduced the death rate of hogs from cholera from 144 in every thousand to 41 in every thousand. If the scientist who made the discovery had received a royalty of one-tenth of a mill per dose, he would be a millionaire. But it was a Government discovery—he was a Government employee. He is working on in the department as he was before and has received nothing for his discovery, in addition to his modest salary, except the satisfaction of knowing what he has accomplished for the benefit of the American farmer and the country as a whole.

Appropriation Cuts.

Now it is a very discouraging thing to ask such faithful workers to "carry on" day after day at salaries considerably below what they could get in outside establishments. But it is more discouraging to those people to be compelled to do their work without adequate equipment—with insufficient appropriations. In spite of the fact that we are now working under such handicaps—reduced funds over those provided last year—we are facing still further reductions in the pending apprpriation bill for the Department of Agriculture.

The appropriations for the department are now under consideration by the conferees of the House and Senate. The original estimates called for a total of $37,672,000—an increase of approximately $3,628,000 over the 1920 act. The bill as passed by the House carried only $30,272,000—$3,627,000 less than the present appropriation, and $7,250,000 less than the estimates. After carefully reviewing its estimates and reducing them to the lowest possible minimum, the department, although it still felt that the amounts originally suggested were fully justified, urged the Senate Committee to provide not less than $34,948,000 for the prosecution of its activities next year. This sum is only $1,048,000 more than the current appropriation and represented a reduction of more than $2,500,000 in the original estimates. The total carried by the bill as reported by the Senate Committee was $32,306,000—$1,593,000 less than the appropriation for 1920, and $2,800,000 less than the amount suggested by the department to the Senate Committee, and $5,366,000 less than the original estimates. The bill as passed by the Senate carries $32,740,000, an increase of $2,468,000 over the House bill, but a decrease of approximately $5,000,000 below the department estimates. In other words, although the Senate increased the House bill by $2,468,000, we are still facing a reduction of nearly $1,160,000 below the funds at present available, and, in all probability, further reductions will be made by the conferees.

Curtailment of Work Necessary.

It will be necessary, in the circumstances, to make serious curtailments in vital and important activities at the close of the current fiscal year. For example, the item for dairy investigations has been decreased by $37,750. This means that the valuable work which the Dairy Division is doing to aid the dairy interests of the United States, to work out better methods of preparing and utilizing dairy products, and to further develop the manufacture of such products as American Roquefort and Swiss cheese will be seriously interfered with.

The appropriation for cereal investigations has been cut $80,000, compelling a serious curtailment of investigational work relating to the development of improved varieties through breeding and selection, the improvement of cultural practices, and the working out of practical methods for the control of important cereal diseases. Experiments now conducted independently or cooperatively at 10 field stations will have to be discontinued and the work at others considerably decreased.

The appropriation for the Bureau of Plant Industry, as a whole, has been reduced by nearly $300,000, exclusive of the item for congressional seed distribution, which has been eliminated from the bill upon the recommendation of the department.

The funds available to the Bureau of Entomology for combating insect pests, which cause enormous losses every year, have been curtailed to the extent of $117,000.

The efforts of the Bureau of Markets to aid in bringing about the more systematic and orderly distribution of farm products will be seriously interfered

with because its appropriation has been cut by more than $230,000.

The item for color investigations has been cut by approximately $31,000, and this will handicap the department in its efforts to assist in the development of the dye industry in this country and to make us independent of foreign sources.

The appropriation for the Bureau of Crop Estimates has been cut by nearly $50,000, making it necessary to discontinue the issuance of its commercial apple, peach, potato, and truck crop reports.

The fund for combating foot-and-mouth disease, whenever it appears in this country, has been reduced by $950,000, or from approximately $1,500,000 to $550,000. One million dollars of the present appropriation is merely an insurance fund and can be used only in case of an actual outbreak of the disease. The remaining $500,000 is available for investigating reported appearances, as well as in combating actual outbreaks. If foot-and-mouth disease actually occurs in the United States while Congress is not in session, the funds carried in the Senate bill will, in all probability, be totally insufficient to cope with the situation.

Printing Funds Inadequate.

This will indicate to you some of the difficulties we will have to contend with next year on account of the lack of adequate funds. They are difficulties that will be added to those we already have. For instance, we are in the midst of a campaign to stimulate home gardening. The indications are that growers of truck crops will greatly reduce their acreage this year because of the difficulties of securing labor. For that reason we are urging every man with a back yard to put it to work growing food. We have some excellent booklets that tell the city man how to convert his back yard into a small food factory. But we have only a few thousand copies and there are millions of potential home gardeners. We can not print more bulletins because we haven't the money. We are getting 3,000 letters daily requesting bulletins, but we can not begin to meet the demand. We printed a small poster to encourage home gardening. We had money enough to buy only 5,000 copies. Imagine trying to cover the United States with 5,000 copies. We sent one copy each to the chambers of commerce. We are getting letters now asking for thousands of copies of these posters and we can not furnish them. The people do not understand why we can not give them this service. They write in and say: "Do you mean to tell me that we can have only one copy of this poster for our city of 65,000?" And we have to reply that we can do nothing about it. We haven't the money.

Makes More Milk on Roughage Alone Than When Fed Regular Balanced Ration

When Helen Uilkje Calamity 145857 was switched from a grain to a purely roughage ration, it was thought that she might object to this change of diet and drop off in milk production but she didn't. In fact this cow actually increased her flow of milk, and surpassed any of her previous years' production records by more than 2,400 pounds of milk.

Helen, who comes of a good old family, and is a granddaughter of Homestead Girl De Kol-Sarcastic Lad, was sent by the Dairy Division of the United States Department of Agriculture from Beltsville, Md., to Huntley, Mont., in May, 1918. When she freshened on June 21 it was decided to run her on a semiofficial yearly test without any grain in her ration.

No Grain in the Ration.

Her ration consisted entirely of alfalfa hay, silage, and pasture, and she was milked three times a day. The alfalfa hay was of fine quality, and most of the silage was corn silage, although she received a little sunflower silage in December, January, and February. The pasture was an irrigated tame-grass mixture and was of good quality.

At 4 years of age Helen had produced at Beltsville 11,476.6 pounds of milk, 382.05 pounds of butterfat, on two daily milkings, and a grain, hay, and silage ration. Again at 6 years of age she produced 11,778.2 pounds of milk, 388.39 pounds of fat, on two milkings and a grain, hay, and silage ration. She was 8 years and 3 months old when the test on roughage alone began, and her production for a year, on that feed, was 14,210.1 pounds of milk and 470.24 pounds of fat.

Trying for a Higher Record.

Helen is now being run on a second test, three milkings a day, with the same roughage but with a grain mixture in addition. She has milked as high as 91 pounds a day, and promises to increase considerably her record made on roughage alone. The Dairy Division, in cooperation with the Montana Experiment Station, will run other cows on roughage alone, and also on roughage and grain, at the Huntley experiment farm, to ascertain the maximum producing ability of good cows when they are fed on good roughage only, with access to pasture, and also when they are given grain in addition to the roughage and pasture.

That is only an instance. We are also conducting a nation-wide campaign to improve all live stock by better breeding. We are cooperating with the State agricultural colleges and other agencies in this drive. We have promised to furnish them material—booklets that tell farmers how they can improve their live stock. They are demanding these bulletins, but we can not keep our promise. We have not the money.

We have eradicated the cattle-fever tick—a pest that caused a loss of $40,000,000 to $60,000,000 every year—from 509,000 square miles, and it is necessary to eradicate it from 220,000 square miles more. We have been using a poster that was very effective, displayed in post offices and other public places in tick territory. But we have been compelled to discontinue the printing of this poster because we haven't the money.

It is the same all the way along. We have results of important investigations, but we can not give them to the public because we can not have them printed. Some of these investigations represent the life work of scientists. Many of them have cost considerable sums. Farmers know that these investigations have been carried on. They know that the investigations have been concluded and they are demanding the results. We can not give them the results because it would cost a few hundred dollars to have them printed—and we haven't got the money. The failure to give the people the results of an investigation for which we have spent their money is bad enough, but you can imagine how such failure affects the scientists and investigators who have worked day and night to learn these new facts. They are discouraged, and you can not blame them. Personally I do not consider such parsimony at a time like this economy. I have only mentioned printing as an example.

I ask you to give careful thought to these problems, because they are matters that involve the welfare of all the people you serve through your newspapers. And they are vital matters. In these days when we are giving thought to the readjustment of our industries we must not overlook the industry that is basic to all. And that is agriculture. As the foundation of all others it must be strong or the whole structure that rests upon it will totter and fall.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Relation of Soils to Road Building.

An investigation which promises to place at the disposal of highway engineers important information regarding the relation of soils to highway durability has been undertaken by the Bureau of Public Roads, United States Department of Agriculture. This work includes taking samples of soil at spots in the subgrade of a highway where the road has begun to fail, studying surrounding geological conditions to determine how moisture arrived in the subgrade, thus destroying its value, making laboratory tests to determine the physical characteristics of soils, and obtaining a scientific measure of the bearing value of soils. In this investigation it is proposed to obtain as much cooperation as possible from the various State highway departments. The Bureau of Soils is cooperating with the Bureau of Public Roads in this work.

Preliminary investigation has been started in Maryland on the Washington-Baltimore road, and will be extended beyond Baltimore and on other roads in Maryland. Progress has been made in the matter of laboratory tests, a number of samples of subgrade material and other samples already having been examined.

The Federal highway engineers point out that soils differ widely in their ability to support loads, particularly when they are wet. Just why this is true and just what are the characteristics which make them different is little understood at present. It is in this field of investigation, of increasing importance because of the growing volume of heavy traffic, that the Federal investigators expect to secure important information.

A. E. F. Bridges for National Forests.

As the Germans retreated their last effort was always directed at the destruction of the bridges behind them. The United States Army engineers were prepared for this and were supplied with what is known as "fabricated material"—steel girders and trusses all drilled at the factory and ready to be set up across the Aisne or the Marne, or whatever river it happened to be, so that Yank could cross and again close with his foes.

The end of the war came too soon to make it necessary to use all this bridge material, and the Bureau of Public Roads, United States Department of Agriculture, has its engineers on the problem of adapting the surplus for use in the forest reserves and national parks.

"Fabricated material" means that the parts are ready drilled for connection. This steelwork is in short, easily handled sections—no part weighs over 2,856 pounds—and it probably will lend itself as easily to the uses of the summer vacationist as to the hobnailed tramp of an armed infanryman moving at double-quick.

Besides 168 spans of drilled material, there is at Camp Humphreys, Va., about 900 tons of unfabricated stuff. This will be examined by experts and much of it will be used in the national forests. A rough estimate places the value of this surplus material at about $300,000.

Clean Up the Stable Fly.

Have you ever tried to sleep on a hot summer night when just one mosquito had crept through the window screen? Imagine your state of mind if that single mosquito were multiplied by 100 and you had your hands tied!

That sensation, according to the Bureau of Entomology, United States Department of Agriculture, is something comparable with what a horse, mule, or cow endures when the stable fly is present in great numbers.

The stable fly greatly resembles the ordinary house fly but for the lance with which he is armed. It is known that he carries disease from infected animals to healthy ones, and there is some ground for belief that the insect aids the spread of spinal meningitis among human beings.

The eggs of the fly are laid in loose, warm straw heaps and piles of stable refuse. A plague of flies always starts from these sources, and the control of the pest is best managed by scattering the straw early in the spring before the beginning of warm weather and plowing it under, or by burning it when the former method can not be applied.

Stable refuse should be scattered at regular intervals of one week or less throughout the season, starting with early spring. In this way the first generation of the pest is destroyed and a plague averted. A recent publication of the department, Farmers' Bulletin 1097, gives in detail the life history of the stable fly, methods for its control, and some facts concerning the amount of damage done by the insect.

Market Rabbits Shot in Drives.

Besides killing approximately 35,000 jack rabbits which were injurious to crops, the rabbit "drives" which have taken place in eastern Washington during recent months have helped to lessen living costs by putting on the market a considerable amount of rabbit meat. The Biological Survey of the United States Department of Agriculture, under whose supervision the drives were conducted, found on investigation that there was a good demand for wild-rabbit meat. Trial shipments made to seven markets indicated that white-tailed rabbits would bring the shipper about $2.50 a dozen and black-tailed rabbits about 50 cents less. Persons desirous of marketing rabbits were advised that those which had been shot were preferred to those which had been harried and killed by clubbing, and that the carcasses should be drawn as soon as possible after they had been cooled. The sales made the past season were chiefly in Spokane, Portland, Seattle, and Takoma. Considerable interest is being shown in the proposal to further extend sale of jack-rabbit meat by trapping the animals in inclosures, properly baited, and supplying certain markets with shipments of a definite size at stated intervals.

All On One of Uncle Sam's Playgrounds.

Here are some of the things the Forest Service, United States Department of Agriculture, offers you for your vacation on one of Uncle Sam's playgrounds—the Arroyo Seco Division of the Angeles National Forest in southern California. And, of course, this is only one of 151 national forests which, besides grazing 12,000,000 live stock and serving many other practical ends, are each year becoming more popular in promoting outdoor recreation. The attractions of this one California forest are summarized by an official of the Forest Service thus:

"Annual pilgrimage of 100,000 people; 200 summer homes; 7 resorts, over three

dozen public camping places; a world-famous scenic mountain railroad; several gold mines; a toll road; a game refuge; 30 miles of roads on Government and private land; 65 miles of trails; 15 miles of fire breaks; over 25 miles of phone lines; 2 sanitariums; 2 castles; several $100,000 homes; a State rifle range; a haunted house; the homestead and grave of a son of John Brown of abolition days; a ranger station located on ground where bandits during the seventies are supposed to have buried $15,000; a white mountain lion; a resident population of approximately 200; elevations ranging from 1,000 feet to 7,500 feet; intakes of 5 separate water companies; a reforestation area; 3 ranger stations; a fine gravity water system for headquarters; a powder magazine and 2 stream-gauging stations; a view that takes in 2 aviation fields, one United States Army Balloon School, one of the largest observatories in the world, 150 miles of Pacific seacoast, 3 separate forests, 45 towns and cities, 3 islands, 3 lakes, 3 rivers, 3 steam railways, thousands of acres of citrus fruit and other fruits, vineyards, 3 golf links, 4 hotels, the Mohave Desert, 2 miles of breakwater, 1 lighthouse, 5 oil fields. Area, 38,000 acres!"

They Tried It On the Cats.

Lack of knowledge concerning the right food to feed rather than lack of food is the cause of much of the malnutrition found among children in this country, child specialists say, and home demonstration agents employed by county farm bureaus in cooperation with the United States Department of Agriculture and the State colleges are being asked this year to teach the kind of food that a growing child should have.

Sometimes talks and demonstrations are given to the mothers, and sometimes they are given to the children at school. It is an interesting fact that the best results come when talks with the mothers are supplemented by talking directly to the children.

Milk, whole milk, is always advised as the ideal food for the growing child, and sometimes the results of the experiments made by an investigator who fed milk to rats is told the children to drive home the necessity of drinking milk if they wish to be healthy and strong.

Among the pupils who heard such a lecture in a school in Platte County, Wyo., were three boys from one family. All three were very much underweight, as were two younger brothers at home. Their mother had had little training in the care and feeding of children and the children showed it. She was very willing, however, to help carry out the suggestions about food that the children brought home from the lecture.

Two months later the home demonstration agent met the mother, who told her how pleased the whole family was at the children's gain in weight and general health since their change in diet. Then she said: "I must tell you about the experiment that the boys tried with cats to show me that what you told about the rats was true. They thought that cats ought to do as well as rats in an experiment of that kind, and they had the cats and didn't have the rats. So they took two kittens, and to one they only fed separated milk, and to the other they gave whole milk with a tablespoon of cream added to each feeding.

"It turned out with them just like it did with the rats, to the intense satisfaction of the boys. The kitten that had the whole milk grew big and strong, while the one on the separated milk diet was thin and puny."

The Jack Bean—A Vegetable Gold Brick.

Savage disciples of Voodoo worship in the American Tropics ascribe supernatural powers to the jack bean. These tribesmen plant a row of the seed around their rude gardens in the belief that the plant will punish trespassers. This custom was doubtless brought by Negro slaves from Africa, where the very similar sword or fetich bean is thus worshiped. But the Bureau of Plant Industry, United States Department of Agriculture, fails to support this weird belief concerning the bean. Nor do these scientists find much else to recommend this plant stranger from the West Indies.

The jack bean, it appears from abundant experiments, is a prolific plant. It is not unusual for the seeds in their 14-inch pods of a jack-bean plant to outweigh its own herbage; and the herbage, if cut green, frequently crops at the rate of 16 to 20 tons per acre. This wonderful productiveness makes the bean a favorite of the get-rich-quick gentry who seek to introduce a new and marvelous commercial plant. This popularity among unscrupulous promoters accounts in part, at least, for the numerous aliases under which the jack bean is known. "Pearson bean," "wonder bean," "Wataka bean," "Gotani bean," "South American coffee bean," etc., are only a few of the names in which the jack bean has been rechristened.

It has some value in the South as a green-manure crop, and there is evidence to show that it may be a good silage crop when cut green.

Cattle do not relish the jack-bean hay, nor do they make gains upon the ground seed, which product they must be taught to eat.

The bean is eaten by natives of Mexico, but most experimenters describe it as flat and coarse in flavor.

The seed contains a large proportion of a material known as urease, and used in chemical analysis, but the demand for this product is extremely limited.

After all, the scientists warn the prospective buyer of "wonder beans" to have a specimen identified, or else confine the first plantings to small areas until the doubtful values of the bean are better established and a better market provided than seems to exist at present.

Vegetable Seed Acreage, 1920.

The prospective commercial acreage of vegetable-seed crops for 1920, compared with last year, shows marked reductions in the acreage reported for dwarf snap beans, all beet, carrot, lettuce, onion seed, radish, spinach, sweet corn, and tomato seed, while a slightly increased acreage is reported for garden pole beans, cucumber, muskmelon, watermelon, parsley, pepper, pumpkin, and Swede turnip seed.

These estimates are based on reports received by the Bureau of Markets, United States Department of Agriculture, early in April from commercial vegetable-seed growers and are as accurate and complete as it was possible to obtain at that time.

The estimated prospective production for 1920 (computed on the basis of the acreage reported and the average yield per acre for the four-year period 1916–1919), compared with that for 1919, is about 35 per cent less for sweet corn and English turnip; 50 per cent less for dwarf snap beans, celery, parsnip, and squash; 60 per cent less for cabbage and radish; and about 80 per cent less for garden and mangel beet, carrot, onion seed, and spinach; while an increase is indicated of 20 per cent for sugar beet and garden peas and 50 per cent for onion sets.

The estimated acreage and prospective production for 1920 are more comparable with those for 1917, and the reductions in acreage and production as noted should not be taken as an indication that the vegetable-seed growing industry in this country is on the decline from that of prewar years.

As vacation time approaches remember that the national forests, east and west, contain some of the finest recreation spots in all America. For information write the Forest Service, United States Department of Agriculture, Washington, D. C.

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Secretary Meredith Tells Business Men Scope and Needs of Agriculture

Department Studies Losses in Food Products—Devises Means for Checking Them.

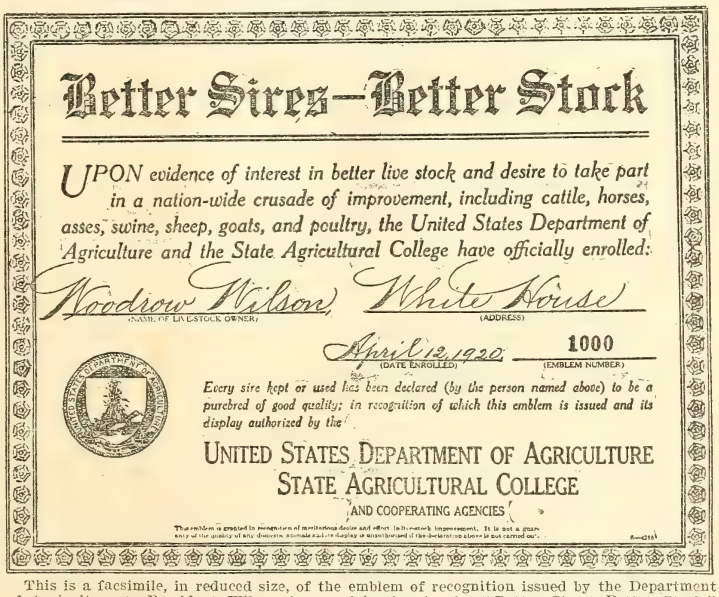
Introduced Many Varieties of Products Into United States—Leads Fight Against Plant Insects.

"If all the farmers in the United States should decide to go into some other business—branch out, as we say—they could sell their live stock and crops for one year, and with the money they receive buy all the railroads in in the United States, together with all the rolling stock and other equipment," declared Secretary of Agriculture Meredith before the U. S. Chamber of Commerce at Atlantic City, April 28. "If they wished to go our of the farming business entirely, they could sell their farms along with their crops and live stock, and with the money they receive, buy all the railroads, all the manufacturing establishments, all the mines and all the quarries in the United States. In other words, it would be just an 'even trade' between the farm property and all the other productive property in the United States, except the mercantile establishments. They could with their income from live stock and crops for a single year pay practically the entire national debt. The investment in agriculture amounts to about 80 billion dollars, and last year the value of crops and live stock aggregated 25 billion dollars.

"The business men assembled here do not need to be told that an industry of this size is of fundamental importance to the prosperity and welfare of the country as a whole. You all realize that when crops are good business will be good, and when crops are poor and farmers are not buying other lines of business will suffer. Think of the purchasing power of the growers of such cash crops as cotton, wheat and tobacco, which in

(*Continued on page 5.*)

PRESIDENT WILSON ENROLLS FLOCK IN BETTER SIRES CAMPAIGN.



Better Sires—Better Stock

UPON evidence of interest in better live stock and desire to take part in a nation-wide crusade of improvement, including cattle, horses, asses, swine, sheep, goats, and poultry, the United States Department of Agriculture and the State Agricultural College have officially enrolled:

Woodrow Wilson (NAME OF LIVESTOCK OWNER) White House (ADDRESS)

April 12, 1920 (DATE ENROLLED) 1000 (EMBLEM NUMBER)

Every sire kept or used has been declared (by the person named above) to be a purebred of good quality; in recognition of which this emblem is issued and its display authorized by the

UNITED STATES DEPARTMENT OF AGRICULTURE
STATE AGRICULTURAL COLLEGE
AND COOPERATING AGENCIES

This is a facsimile, in reduced size, of the emblem of recognition issued by the Department of Agriculture to President Wilson for participation in the "Better Sires—Better Stock" movement. The sheep that graze on the White House lawn are the President's personal property and make him eligible for participation in the nation-wide effort to improve livestock in the United States. The ewes are grades but are headed by a purebred ram. Thus, like the herds and flocks of many other livestock owners, the President's sheep are undergoing improvement through the use of better sires. The White House flock now numbers 48, of which 21 are lambs born this spring.

STEADY PROGRESS SHOWN IN CAMPAIGN FOR BETTER SIRES

More Than 125,000 Animals and Fowls Enrolled During First Six Months

Use of Purebred Males Leads to Use of Purebred Females Also—Only 2.5 Per Cent of Scrub Sows Used

Outstanding results during the first six months of the "Better Sires—Better Stock" movement are announced by the United States Department of Agriculture. Owners of 63,628 animals, in addition to 61,413 poultry, have pledged themselves to use purebred sires for all classes of live stock kept. In view of the prolificacy of farm live stock, especially swine and poultry, a rapid upward trend in the quality of animals on farms enrolled in the campaign is expected.

Virginia Leads.

During the first six months 990 persons complied with the official request to use purebred sires only, and upon written declaration to that effect each was awarded a suitable emblem. In Pulaski County, Va., 180 live-stock owners aligned themselves with the campaign. This is the largest figure for any county in the United States. Hampshire County, Mass., Brunswick County, Va., and Transylvania County, N. C., are others having large enrollments. As a State, Virginia ranks first, North Carolina second, Massachusetts third, Colorado

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fourth, and Florida fifth on the basis of number of persons enrolled.

Many Females Purebred Also.

Supporting the evidence of the first three months, when it was observed that the use of purebred males led to the use of purebred females also, the complete figures for six months furnish additional evidence. In poultry flocks headed by sires of pure breeding, more than 67 per cent of the hens were likewise of pure breeding, only about 2 per cent being mongrels. The remainder were grade and crossbred birds. In swine about 63 per cent of the sows in herds headed by purebred boars were purebred, and only 2.5 per cent were scrubs. The averages for all animals and poultry listed—more than 125,000—were, purebred females, 48.3 per cent; grades, 39.0 per cent; crossbreds, 10.2 per cent; and scrubs, 2.5 per cent. In all cases the males used were purebred, that being the requirement for enrollment in the campaign.

A NEW NAME FOR THE SCRUBS.

From a farmer in Wisconsin comes a new word for use in the "Better Sires—Better Stock" campaign now being carried on by the United States Department of Agriculture in cooperation with State and local agencies. He applies a new title to the reactionaries of bovine society, and cites the indubitable fact that scrub bulls are the enemies of good production; that they levy upon the milk, cream, and butter checks and compel the farmer to keep cows, where the cows should keep the farmer.

With these charges in mind and with his eyes on the international situation, this farmer suggests that the scrub bull be known hereafter as the Bulsheviks.

NUMBER OF BREEDING SOWS LESS.

Breeding sows declined 9.9 per cent during the year ending April 1, 1920, according to investigations of the Bureau of Crop Estimates. The same number of these animals for both years is reported for South Carolina and Georgia, and increases for Florida, Texas, and New Mexico. The heaviest declines were found in Massachusetts, Indiana, Illinois, Missouri, North Dakota, Nebraska, Kansas, Kentucky, Tennessee, Montana, Wyoming, Colorado, Arizona, Utah, and Idaho.

The value of the motor truck as an aid in marketing farm products is now well established. In bringing this about improved roads have been an essential factor.

REPORT COMPARES EFFICIENCY FOUND ON 600 ILLINOIS FARMS

Results of Standard Day's Work in Central Part of State Discussed.

Corn Binder Increases Effectiveness of Man Labor 50 Per Cent—Elevator Reduces Time of Unloading Grain 75 Per Cent.

The relative efficiency of plows of different sizes, the value of the tractor compared with horses, the saving effected by corn binders, hay loaders, and numerous other implements, and other facts bearing on farm management are discussed by specialists of the Office of Farm Management, United States Department of Agriculture, in a bulletin recently issued.

A TRIBUTE TO THE ROSE.

The great task of pioneering and bringing the land under the plow has, for the most part, been accomplished. The people of this Nation are no longer content with the attainment of the three primary necessities—food, clothing, and shelter. They demand in addition that the food shall be the product of many climes; that the clothing shall befit their station and work; and that the shelter shall not only provide bodily comforts but that it shall be surrounded by trees and shrubs, not alone for the shade and protection they offer but for the pleasure they afford as they express life's great drama in the passing of the seasons.

No decorative plant has been more closely identified with the progress of western civilization than the rose. It is an insignia alike of joy, of sorrow, of love, and of war. It is the flower beloved by all. Certainly those who contribute in any way to the propagation, development, and culture of the rose are adding much to the joys and beauties of life.—Secretary Meredith, in the American Rose Annual.

The publication discusses in detail the standard day's work in central Illinois; that is, the amount of work that the 600 farmers included in the investigation ordinarily do in that part of the workday devoted to a given farm operation, such as the number of acres plowed with a given equipment. In some instances the rate of work is given in the bulletin in number of minutes per load, as in loading and unloading hay, or hauling and spreading manure.

From the figures published one may get a good idea of the rate at which different farm operations are done in the parts of the corn belt in question. For example, it is shown that one man does from 70 to 80 per cent more with the 28-inch horse-drawn gang plow than with the one-bottom 16-inch plow.

Figures are given for spring and fall plowing, harrowing, planting, cultivating, harvesting, husking, seeding, unloading ear corn, unloading oats, loading and unloading hay, and hauling and spreading manure. The bulletin is entitled "The Standard Day's Work in Central Illinois." Copies may be had by addressing the United States Department of Agriculture, Washington, D. C.

The farmers represented by this inquiry are fairly typical of those throughout the Middle Western States, since the average crop area is 167.4 acres and on average of 32.1 acres is never planted to crops. Corn is the principal product, at least one-half of the crop area being devoted to it, and the oat crop is second in importance. The ground cultivated in most instances is level, and so represents easier working conditions than rolling or rugged country.

The average time spent in the field, exclusive of the time used in going to and returning from the field, at morning, noon, and night, is reported by these men as 10 hours and 10 minutes per day devoted to spring field work and corn cultivation; 9 hours and 55 minutes for haying and grain harvesting; 9 hours and 30 minutes for fall plowing and preparing ground; and 9 hours and 20 minutes for corn harvest.

Important Facts Emphasized.

Among the significant facts brought out by this inquiry may be mentioned the following:

Under conditions where the use of a 2-row corn cultivator is practicable this machine enables one man on these farms to cover nearly twice as much ground per day as with a 1-row cultivator. Three horses are most commonly used on the 2-row cultivator, and the addition of a fourth horse apparently increases but little the amount of ground covered per day.

These farmers find that the use of a corn binder increases the efficiency of man labor 50 per cent over that achieved when cutting and shocking by hand.

Eighty bushels was an average day's work on these farms for one man when husking corn from the standing stalk by hand.

The use of a portable elevator reduces the time required to unload grain into the bin by about 75 per cent.

The use of a hay-loader reduces by about 25 per cent the time required to put on a load of hay. The amount of labor required for unloading into the mow is only a little more than half as great when a hay-fork is used as when the work is done by hand.

The men in this territory who use manure spreaders haul and spread a given amount of manure in less than

half the time required by men who haul in wagons and spread by hand.

A large majority of the men reporting, broadcast their small grain, using end-gate seeders attached to the box of an ordinary wagon. Only about 25 per cent of the farmers reporting own grain drills.

The bulletin analyzes each field operation from the standpoint of man-labor requirements, horse-labor requirements, size of machine, etc. The manner in which the data on plowing have been summarized is typical of the way in which several subjects are treated. About 80 per cent of the farmers reported the use of sulky plows, about 80 per cent stated that they use horse-drawn gang plows, and 14 per cent reported the use of tractors for plowing.

16-Inch Sulky Plows Popular.

A large majority of the farmers use 16-inch sulky plows, nearly all of them with three horses in the spring. Three acres is an average day's work for this outfit. For the comparatively few farmers using 14-inch sulky plows with three horses in spring, plowing about 3 acres is an average day's work. While theoretically the 16-inch plow should cover about 15 per cent more ground in the same length of time, this apparently has not been found true in practice.

The greater number of 4-horse teams and even some 5-horse teams on 14-inch sulky plows for fall plowing is accounted for by the fact that plowing in the fall is usually about 1 inch deeper than in the spring, and also by the fact that the ground is generally dry and hard to turn. On an average outfits of the same size cover about a half acre less per day in the fall than in the spring, due not only to the more difficult conditions mentioned above, but also to the fact that the time spent in the field is about two-thirds of an hour less per day in the fall.

As is the case in spring plowing, the 14-inch plow seems to cover practically as much ground per day as the 16-inch size, provided both are drawn by the same number of horses. The addition of the fourth horse increases the efficiency of the unit by about 10 per cent and the addition of the fifth horse to the 16-inch plow results in a similar increase. Excepting under favorable conditions, a sulky plow seems to be somewhat of an overload for three horses of the size and type used on these farms.

Many Gang Plows Used.

Over 450 men reported using horse-drawn gang plows on their farms. About 80 per cent of these plows have 14-inch bottoms. Most of the remaining plows have 12-inch bottoms. Some plows with 13-inch bottoms were reported, but the number was so small that no figures on their performance are given. Over three-fourths of the men who use gang plows also reported the use of sulky plows.

A comparison of an average day's work for 16-inch sulky plows and 28-inch gang plows shows that so far as horse labor is concerned the gang plow drawn by four horses is the most efficient unit in both spring and fall. In the spring this outfit covers 1¼ acres per day per horse, while both the sulky plow drawn by three horses and the gang plow drawn by five horses cover 1 acre per day per horse. The gang plow drawn by six horses covers but nine-tenths of an acre per horse.

In the fall four horses with the gang plow cover 1.02 acres per horse, while three horses on the sulky plow and five horses on the gang plow cover 0.86 acre and 0.91 acre per horse, respectively. Four horses on the sulky plow and six horses on the gang plow cover 0.72 and 0.78 acre per horse, respectively. However, the gang plow is evidently a heavy load for four horses in the fall, excepting under favorable conditions. The 28-inch gang is a somewhat heavier load for six horses, the most popular-sized team used in the fall, than is the 16-inch sulky for four horses, but is a lighter load than the 16-inch sulky for three horses.

As far as man labor is concerned, the gang plow drawn by six horses is, of course, the most efficient unit both in the spring and fall, but when horse labor as well as man labor is considered it is seen that the advantage of this largest unit is somewhat lessened.

Chicken mites do not feed to any great extent upon other hosts when chickens are at hand. They are carried about chiefly by the interchange of poultry and in crates and boxes in which fowls are shipped.

NEEDS WELL-TRAINED MEN.

Well-trained men are needed for all forms of extension work. Extension work affords reasonable compensation. It is, above all, a great training school. Opportunities of many kinds are open to those who make good as extension agents. If a man has good training but lacks the spirit of service, he is not wanted in extension work. Men and women must see possibilities in the people they serve. No community is so prosperous and satisfactory that a good county agent can not do that community a great deal of good.—J. A. Evans, Chief, Office of Extension Work, South.

HOME-MADE SORGHUM SIRUP RELIEF FOR SUGAR SHORTAGE

Process Simple, Requiring no Unusual Skill or Costly Equipment.

Can Be Substituted for Sugar in Making Breads, Cakes, etc.—Helps Out in Preserving—Cost Relatively Low.

As a simple, practical means of helping relieve the acute sugar and sirup shortage, the United States Department of Agriculture recommends the increased production of sorghum sirup, which, it is pointed out, requires neither unusual skill nor expensive equipment to make. Furthermore, the methods of growing sorghum are similar to those of corn, and in that respect involve little that is new to many farmers. Sirup manufacture is so simple that it can be carried on with profit by individuals utilizing small-sized outfits of a daily capacity of 100 gallons or less. Where operations on a larger scale are feasible, community plants having a daily capacity of several hundred gallons are suggested by the department.

Sorghum sirup is palatable and pleasant flavored, and is an excellent table sirup. It can also be used as a substitute for other sirups or for sugar in making certain breads, cakes, etc., and as a substitute for a part of the sugar used in making preserves and the like. The cost of producing it at home is relatively low, and usually an individual manufacturing it can readily sell any excess over his home needs to good advantage. Sorghum sirup produced during the 1919 season brought the producers from 90 cents to $1.50 a gallon, depending on the quality, marketing conditions, etc. Thus far the supply has fallen far short of the market demand.

Circular Tells How.

The United States Department of Agriculture has prepared a brief summary of information regarding the growing of sorghum and the equipment necessary to make sirup. A copy of this circular may be had by addressing the Department of Agriculture, Washington, D. C. Those desiring more detailed information in regard to the subject should ask the department for Farmer's Bulletin 477, "Sorghum Sirup Manufacture."

The sorghum plant is similar in appearance to corn, growing about the same height and possessing about the same color. It may be grown throughout the United States in practically all regions where corn is grown, though parts of the

extreme northern tier of States have a growing season usually too short for sweet sorghum to mature. In growing sorghum for sirup care should be taken to secure seeds of a sweet sorghum variety, and for planting in the North one which matures quickly.

Sweet sorghum is grown from seed and is planted in rows about 3½ feet apart. The plants should stand from 4 to 6 inches apart in the row. Approximately from 5 to 8 pounds of seed is needed to the acre. Ordinarily planting time falls soon after corn planting, when the soil has become thoroughly warm. The stalks of the plants are ready for sirup making when the seeds which form heads at the top of the stalk are in the late dough stage; that is, just before they become dry and hard.

The machinery necessary for making sirup consists of a mill for extracting the juice from the cane and an evaporator for reducing the juice to sirup. The mill contains three iron rollers between which the sorghum stalks are passed to press out the juice. It may be operated by a gasoline engine or by a sweep drawn by horses.

The usual type of evaporator consists of a rectangular, flat-bottomed pan of galvanized iron or copper. Evaporation may be produced by direct contact with fire or with steam. In the former case the pan is mounted on a specially constructed fire box. If steam evaporation is employed, the pan is provided with steam coils which lie on the bottom of the pan. In some cases a double-bottomed pan is used, the space so provided being employed to carry the steam.

Other Equipment Needed.

Other articles needed are barrels or tubs for catching the juice, pipes for conducting it to the pan, skimmers for removing the scum, apparatus for testing the sirup's consistency, and barrels or cans for holding the finished product.

In making a sirup the blades of the plants are stripped off, the sorghum cut at about 6 inches from the ground, the seed heads removed. The sorghum is passed through the mill with as little delay as possible. When the weather is cool or there is danger of frost, the sorghum may be cut considerably in advance of pressing, for when properly piled it will keep for several days. The juice extracted by the mill is strained and then run into the evaporating pan. As it passes through the pan it quickly comes to a boiling point and a scum rises to the surface. This should be constantly and carefully removed.

Sirup should be evaporated to a point where it contains not less than 70 per cent solids; that is, has a weight of not less than 11¼ pounds to the gallon. If placed in containers while boiling hot and properly sealed, it will keep indefinitely.

The department's publication describes in detail the methods of manufacture, including the clarification of the juice if such is desired and the utilization of by-products. The latter include the blades of the plants, which make excellent feed for cattle, the bagasse (the stalk from which the juice has been removed), the scum which may be fed to hogs in small quantities, and seed heads, which also have a feeding value.

The average yield of sirup an acre is from 75 to 200 gallons, although in some cases it has been as high as 400 gallons. The estimates on the yield of seed an acre vary from 600 to 1,600 pounds.

Food's Long Trail from Farm to Table
A Big Item in Forcing Up Living Costs

A line from a popular song—"There's a long, long trail a-winding"—applies to at least one of the many and devious paths which old man H. C. L. treads in his effort to make living complex and expensive for the average person.

The particular byway referred to is that which wholesale shipments of food follow in their costly travel from the railway car to the retailer. A carload of fruit or vegetables can be sped half way across the continent in a day or two, but on arriving in the city where the food is to be retailed, the shipment starts on a winding trail which too often adds little but unnecessary costs and delay.

Eliminating Expensive Carting.

This expensive shunting and hauling of foodstuffs from point to point in the cities and the spoilage which the unnecessary handling causes are the big items centralized wholesale terminals eliminate. The Bureau of Markets, United States Department of Agriculture, has been on this trail, literally, following shipments step by step to determine how much expense is added to the cost of food by unnecessary handling between the shipper and the retailer. The route followed by a carload of peaches entering a middle western city over a railroad not provided with team tracks well illustrates this phase of the distribution problem.

This car had to be switched from the railroad on which it entered the city, through the crowded switch yard, to another track which is accessible to teams. Here it stood until the receiving wholesalers' teamsters could finish another job. After this delay two wagons were drawn up beside the car, in turn, and were loaded with the peaches. Thereupon they started for the wholesale house which was 2 miles away.

The teamsters' route lay through the most congested part of the city, the wholesale district being close to the busy retail section. The wagons were a full hour and a quarter making the trip. Meanwhile, the sun beat down on the peaches and the city's dust and dirt filtered in through the crates so that the fruit was far from being as fresh and attractive as when taken from the car. Moreover, the journey so jostled and bruised the fruit that some of it had to be sold at a discount.

Though the wholesalers were particularly anxious to get the peaches delivered to their salesroom on the day of arrival, because of the favorable market, only about one-third of the shipment came in by closing time, and it was noon the next day before the remainder was delivered.

The long, winding trail did not end at the wholesalers. Once unloaded, the peaches were put on display for the benefit of various jobbers, some of whom purchased a few dozen crates and some larger amounts. Some of these men were situated within two or three squares of the wholesaler and their purchases were delivered on hand trucks. In the case of other jobbers another wagon transfer was necessary.

Next in this process which economists call distribution came the retailers to look over the lots, in the end buying small quantities such as they could sell in a day or two. This, of course, necessitated another handling and carting over the city's rough pavements.

Last, but not least, came the consumers, each buying only a small fraction of a crate and paying a big share of the expense all the handling had entailed.

This instance is no exaggeration. A very large part of the foodstuffs brought to American cities goes over some such devious trail. One Washington, D. C., wholesale merchant has stated that he spends $20,000 a year for cartage which could be saved if the city had a wholesale terminal where cars could be unloaded directly into premises occupied by the wholesalers. Following an investigation in New York City it was estimated by a local organization that the saving in handling costs which would result if adequate terminal facilities were

established would be $2,000,000 annually by the borough of Richmond; $8,000,000 by Queens; $16,000,000 by the Bronx; $21,000,000 by Brooklyn, and an even vaster sum by Manhattan.

Marketing experts admit that there are many baffling aspects to the high cost of living problem, but contend that the remedy for the phase of our costly distribution system just described is plain. Cities which will provide modern wholesale terminals, where shipments can be delivered from the railroad cars direct to wholesalers a few feet away, will make possible the saving of immense sums of money now charged up to the consumer.

TELLS BUSINESS MEN NEEDS OF AGRICULTURE

(*Continued from page 1.*)

1919 had a farm value of nearly 5 billion dollars, or the live-stock growers of the country whose production last year was valued at more than 8 billion dollars. And yet I have mentioned only live stock and 3 out of 60 different crops.

Steady Flow of Food Stocks Necessary.

"Not only is agriculture important to other lines of business because of the buying and consuming power of farmers and their families, but it is fundamentally important to all the people of the United States as a source of their food supply, of raw materials for manufacture and because of its contribution to the export trade of the country. Few people realize that the food stocks in the larger cities at any one time are sufficient only for a few weeks or months at most, and that, if the steady flow of farm products to the cities should be seriously interrupted for any reason, the city population would soon face starvation. Nor do many people fully realize that if farm production is curtailed materially, it will mean scarcity and higher prices. Men whose memories go back 30 years will recall the period of relative overproduction and low prices of farm products during the early nineties due to the bringing into cultivation of large areas of rich prairie lands of the Middle West. This was a period of low farm prices and business depression.

"In order that production may keep pace with the growing population, it will be necessary to increase acre yields, which will require that cultivation shall become more and more intensive. Intensive methods of cultivation are expensive in both labor and equipment, and such methods will not be practiced unless the prices farmers receive for their products are adequate.

"It should be remembered also that American farmers are not only in competition with each other as producers, but they are in competition with producers of other countries. Not only that, but agriculture as an industry is in direct competition with other industries for capital, and especially for labor. Under present conditions farmers are losing in competition for labor with other industries. The labor supply of the country is short the normal immigration of labor from Europe during the war period—probably about 4,000,000. During 1917 and 1918 manufacturing industries were largely diverted to the making of war munitions and supplies, and stocks of manufactured commodities were greatly reduced. At the close of the war, therefore, there was an accumulated shortage and an increased demand for manufactured articles. Manufacturing industries could afford to speed up to full capacity and pay increasingly higher wages, because the additional cost could be passed on to the consuming public.

"The extra labor required for this increased output was obtained largely from farms. The drift of young people from farms to the cities had been going on at an increasing rate even prior to the war, especially in the vicinity of industrial centers. More than 2,000,000 young farmers went into the military service. While these young farmer soldiers were fighting for their country on the battle fields of Europe many more laborers were lured away from farms by the high wages and shorter hours of city employment. When the great army of farmer soldiers was mustered out of the military service many of them found employment in cities. Since the close of the war there has been an increasingly heavy draft upon farm labor by other industries offering higher wages, shorter hours, and the allurements of city life. All reports and correspondence that come to the department emphasize the farm labor shortage and its probable effect upon farm operations this year.

No Chance for Quick Turnover.

"Farmers hesitate to pay higher wages because, unlike other industries, there is no opportunity for a quick turnover or to pass the increased cost along to consumers. Not only are farm wages higher than ever before, but farm hired labor is scarce at any price and, on the whole, is said to be relatively less efficient than formerly. Farmers are repeatedly assured from one source or another that prices of all commodities, especially farm prices, will be lower this year than last. This may or may not prove to be true, but the farmers know that the slump in live-stock prices since last July has cost them several hundred million dollars.

"They are now faced with the problem of deciding whether to pay high prices for all the things they have to buy—farm labor, equipment, seed, fertilizers, clothing, and supplies—and the investment of a large part of the cost of production in the early spring months, with the prospect that after harvest, when they come to market their crops, they will be compelled to accept lower prices for everything they have to sell; or, whether they shall cut down the initial expense of production by investing less capital in equipment, supplies, and hired labor by reducing acreage and numbers of live stock. The latter course means smaller production. As business men what would you do in the same circumstances? It is a matter that concerns every business man and every consumer. The food situation during the next 12 months will depend upon what answer the farmers give to this difficult problem.

Business Prosperity Based on Agriculture.

"It is universally agreed that the prosperity of the business interests and the welfare of the entire population is dependent upon or greatly influenced by the relative prosperity of agriculture. Is it not equally obvious that agriculture as an industry can not prosper and that farm production can not be maintained or increased to keep pace with the growing population unless the business of farming, individually and collectively, is profitable one year with another?

"The profitableness of the farm business depends upon three things—ample production, minimum cost of production, and adequate prices. Adequate production at minimum cost involves more efficient methods and economical operations. Factors in this are better utilization of the soil, more intelligent use of fertilizers, the use of better seed, the growing of more productive strains and varieties, better methods of preventing soil erosion, more effective methods of combating insect pests, plant and animal diseases, the production of more and better grades of live stock, better utilization of forage and roughage and waste materials on the farms, better maintenance of soil fertility by conserving soil moisture and manure and a greater use of legumes in rotations and as companion or intertilled crops, the greater use of machinery and practical mechanical power on farms.

"The problem of securing for the farmer prices which will enable him to maintain production is a more difficult one. Attention must be given to better and more economical methods of grading, storing, marketing, and distributing farm products. The Department of Agricul-

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Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
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Edwy B. Reid, Chief

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NEW ENGLAND MOTH MENACE MAY RESULT IN QUARANTINE

Restrictions upon the movement of all forest and quarry products by a quarantine of the New England States to prevent the spread of gipsy and brown-tail moths was considered at a hearing held by the Federal Horticultural Board, United States Department of Agriculture, in Washington, D. C., May 7. All persons interested in the proposed action by the department were given an opportunity of testifying before the board either in person or by attorney.

This hearing was for the purpose of considering the extension of this quarantine to cover the spread which has been made, notably by the gipsy moth, during the past year, and the proposed extension is a counterpart of similar extensions which have been made practically every year since this quarantine was first enforced in 1912.

The spread of the gipsy moth in 1919 was unusual, due to exceptionally favoring conditions. During the summer of 1919 the insect developed some very heavy infestations. Strong winds at the time of the hatching of the larvæ dislodged these young larvæ from the trees and carried them long distances. Similar favorable conditions for wind spread have not existed for years, and there is little doubt that the principal spread of the insect during the past year is to be thus explained. In most of the newly invaded towns the infestation is very light, often limited to a single egg cluster, which further confirms the theory of a wide but very scattered spread by the agency of winds.

Action by the department contemplates restrictions upon the movement of the following articles from the affected States to other parts of the country:

Coniferous trees, such as spruce, fir, hemlock, pine, juniper, and white cedar; decorative plants, such as holly and laurel; forest plant products, including logs, tan bark, posts, poles, railroad ties, cordwood, and lumber; field-grown florists' stock, trees, shrubs, vines, cuttings, and other plants and plant products, except fruit pits, seeds of fruit, and ornamental trees and shrubs, field vegetables, flower seeds, bedding plants, and other herbaceous plants and roots; and stone or quarry products.

Reports to the department show that during the summer of 1919, in addition to the territory now under quarantine, 46 towns in Maine, 45 in New Hampshire, 23 in Vermont, 14 in Massachusetts, and 3 in Connecticut have been found to be infested by the insects.

STATE ORDERS "T" BRAND FOR TUBERCULOUS CATTLE

By a recent order of the New York commissioner of agriculture, all practicing veterinarians in that State are required to brand cattle found by them to be affected with tuberculosis. The order specifies that the brand shall be the letter "T" not less than 2 nor more than 3 inches high and on the left jaw.

The new regulation, which became effective in March, was issued by Commissioner Charles S. Wilson under authority of the agricultural law. The order applies to all bovine animals within the limits of the State. Veterinary experts of the United States Department of Agriculture consider it will be of great value to live-stock breeders of New York and also an important step for any State to take in the progress of tuberculosis eradication. Reactors are permanently marked by the branding process and in cases where they are not slaughtered the possibility of their being disposed of or losing their identity is greatly lessened, if not entirely eliminated.

FEW STATES YIELD BULK OF TOTAL CORN PRODUCTION

Although most of the crops of this country are produced in many of the States, if not all, it is not generally realized that a large fraction of the national crop, perhaps most of it, is the product of a few States. Speaking for 1919, it may be said that nearly one-half of the great corn crop is found in the five States of Iowa, Illinois, Texas, Nebraska, and Indiana. Kansas contributed one-fifth of the winter wheat crop; North Dakota, Minnesota, and South Dakota nearly three-fifths of the spring wheat and seven-eighths of the flax-seed; Pennsylvania and New York, nearly two-thirds of the buckwheat; Louisiana, about one-half of the rice, and that State, California, and Texas nearly seven-eighths.

Tobacco is highly concentrated in Kentucky and North Carolina, from which more than one-half of the crop came. Texas, Georgia, and South Carolina produced more than one-half of the cotton; Alabama, Texas, and Virginia more than one-half of the peanuts; Wisconsin and Illinois 42 per cent of the clover seed.

Nearly one-half of the oats grew in Iowa, Illinois, Texas, Minnesota, and Wisconsin; two-fifths of the potato crop in New York, Michigan, Wisconsin, Minnesota, and Pennsylvania; more than one-half of the barley in California, South Dakota, Minnesota, Kansas, and North Dakota, and of the rye in North Dakota, Michigan, Wisconsin, Minnesota, and Nebraska.

WHEN TO CULTIVATE CORN.

The best answer to the question of how frequently corn should be cultivated, say specialists of the United States Department of Agriculture, is that it should be cultivated often enough to keep down weeds and to maintain constantly a loose soil mulch till the corn has attained its growth. To this end a greater number of cultivations will be necessary when rains at intervals of about a week cause the surface soil to run together and crust. This crust must be broken and the soil mulch restored, or excessive run-off and evaporation will soon rob the soil of its moisture.

Promptness in restoring the soil mulch after a rain is important. With double cultivators widened and by driving astride each alternate row, the mulch is restored in half the time necessary to drive astride of every row.

SERVICE OF MARKET STATIONS.

Market stations maintained by the Bureau of Markets, United States Department of Agriculture, in several of the leading cities are well termed "branches." They reach out in every direction from the central office. Connected by wire and mail service, there is constant circulation of vital news, out and returning, between them and the office in Washington. The raw materials, so to speak, are gathered and worked over to make the market reports, reviews, and press articles which are distributed for the benefit of the public. The market station man works from the early stir of activity in the market section until the day's stint is finished.

TELLS BUSINESS MEN NEEDS OF AGRICULTURE

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ture is organized to develop each of these essential factors for making the business of farming more profitable by making production and marketing more efficient and economical.

Measures to Prevent Waste.

"A few things the Department of Agriculture is doing to prevent waste of foods, taken somewhat at random from among many, might be mentioned.

"Twenty-five million dollars worth of sweet potatoes were wasted in 1919. They rotted because they were stored in earth banks—put on the ground in small heaps and covered with dirt—instead of being stored in properly constructed warehouses. About 50 per cent of sweet potatoes stored in earth banks became so damaged that they could not be eaten. Specialists of the Department of Agriculture developed a storage house that reduced the loss, when used, from 50 per cent to 2 per cent. More than 600 such storage houses, recommended by the Bureau of Markets, were erected—enough to take care of about 9 per cent of the sweet potatoes stored every year. Then we had practically to discontinue the educational campaign, because our appropriations were decreased to such an extent that we had no money for the purpose.

"From $50,000,000 to $75,000,000 is lost every year because baled cotton is left out in the weather instead of being placed in properly regulated storage houses. Tests made by the department have shown losses, by exposing cotton to the weather, ranging as high as $100.48 a bale. The lowest was $8.80 a bale. The Department of Agriculture is trying to eliminate these losses, but the funds at its command for demonstration and educational work make it impossible to cover the ground in any adequate way. Remember that this $75,000,000 annual loss is divided between you and the farmer. He pays part of it when he sells his cotton and you pay the other part when you buy your clothes.

"Multiplied millions of dollars' worth of fruits and vegetables rot every year in railroad cars. In two months last winter $3,000,000 worth of apples from the Pacific Northwest were frozen in transit. That is the estimated loss on one kind of fruit from one section in two months. You can imagine what it is on all kinds of fruit and all kinds of vegetables from all parts of the country in a year. Losses from heat are just about as heavy as those from cold. The Department of Agriculture has been trying for a long time to eliminate those losses and it has reduced them very greatly. Many of the refrigerator cars in use on the railroads are inefficient because of faulty construction, and are unsuitable for the shipment of perishable products. A new type of refrigerator car, therefore, was designed by department specialists and it was so efficient that the Railroad Administration adopted it as a standard. Practically all refrigerator cars built or rebuilt in the United States during the past two years have followed the specifications recommended by the department. Efforts are now being made to perfect a method of heating the standard refrigerator car in cold weather. Specifications already have been worked out for such a method and have been adopted by the Railroad Administration. This work has resulted in the saving of many millions of dollars a year to the producers and consumers of the United States.

Fruit and Vegetable Losses High.

"Losses caused by improper loading and packing of fruits and vegetables frequently run as high as 40 to 50 per cent of the car load. Specifications for loading cars with certain fruits and vegetables have been developed by the department. We have had no opportunity to check up on all cars loaded according to our directions, but we have checked up on potatoes, which formerly suffered very severely. Information collected by our inspectors in Chicago show that sacked potatoes, loaded in the manner suggested by the department, sustained practically no loss. In the winter of 1917–18 75 per cent of the cars of potatoes were improperly loaded.

"Live stock valued at $1,000,000 has arrived dead in Chicago in a single year, mostly because the cars were overloaded or delayed in transit. Something similar occurs every year in every live-stock market. We are working toward the elimination of that kind of loss.

"Backhauling and unnecessary transportation undoubtedly cause a great deal of waste and inefficiency. The proper development of the market news services of the department will do much to eliminate waste and lost motion on this account, by indicating sources of supply and demand and the prices prevailing in various sections of the country.

"When a market is oversupplied with a product—particularly with a highly perishable fruit or vegetable—a great waste results. The product spoils and becomes unfit for use and the dealers suffer a financial loss on account of this spoilage and also on account of the fact that they must sell their stocks at a sacrifice in order to dispose of them at all. Gluts of this kind used to occur frequently and were nearly always coincident with a scarcity of food in another place. Since the market news service on fruits and vegetables was instituted, this situation has improved materially.

"The Bureau of Markets conducts news services on live stock and meats, hay, feeds, and seeds, and dairy products, as well as on fruits and vegetables. These news services keep before producers, distributors, and consumers a picture of the movement of important crops to market, the supplies arriving in all of the principal consuming and distributing centers and the wholesale prices prevailing in each. To make its reports of the greatest practical usefulness, therefore, the Bureau has equipped itself with the fastest system of communication available today—its branch offices in the great consuming and distributing markets are connected with leased telegraph lines and operated by Bureau telegraphers. These wires are busy from 8 to 12 hours a day in the transmission of market information which is vital to intelligent and systematic food distribution.

"From the time the live stock markets open in the morning until the close of the day's business, the Bureau's representatives at Chicago, Kansas City, Omaha, and East St. Louis send out a telegraphic report from one or the other of these markets every fifteen minutes. When you realize that the sales of live stock in the Chicago yards alone average more than $3,000,000 a day and that the value of the live stock sold in the public stockyards of this country is more than $5,000,000,000 annually, you begin to realize the importance of basing that trade on authoritative information. It is possible, also, to realize the great responsibility resting upon the representatives of the Bureau of Markets in undertaking to furnish this information and why the department feels so strongly that it should be granted an appropriation sufficiently large to permit it to give a complete and reliable telegraphic service to the live-stock industry, but we must cut the service because of reduced funds.

"The value of the work of the Bureau of Markets as a whole can not be doubted, but nevertheless Congress has reduced its appropriation by nearly $230,000. This will result in a curtailment of most of the activities of the bureau, and particularly of the market news services, at the close of the present fiscal year.

Grading of Products Lowers Losses.

"Standardization of farm products is fundamental to improvement in marketing. Without well-recognized, acceptable, standard grades the market news services just mentioned can not be made fully effective, because there must be a recognized basis for buying and selling, a common language through which

grower, shipper, transportation company, and dealer may clearly understand one another. Standardization, moreover, eliminates waste and prevents the shipment of diseased with sound fruits and vegetables and of overripe with properly matured specimens. Failure properly to classify products before shipment frequently results in deterioration, decay, and inefficient distribution. Much of this loss might be prevented by sorting products into grades at the point of production, packing each grade separately to minimize contamination, and converting inferior or unmerchantable grades into by-products.

"Although this field of standardization has not been covered, the department has made important progress along this line as a result of the passage of the United States cotton futures, grain standards, and standard container acts. Under these laws, standards have been fixed for shelled corn, wheat, and oats. Upland white, tinged, and stained cotton, American-Egyptian and Sea Island cotton, and for such containers as climax baskets (ordinary grape baskets) and berry boxes.

"A comprehensive system of standardization can not be established through individual effort; it is a national problem, and the business men of the country can render a real service by supporting the department in its efforts to standardize farm products. Several bills authorizing the department to standardize certain commodities and containers are now before Congress.

Find Use for Corn Cobs.

"The Department of Agriculture is eliminating waste along many other important lines, by discovering uses for products which formerly served no useful purpose. The most notable recent illustration is that of corn cobs. About a bushel of cobs is produced for every bushel of shelled corn, and they have been almost a complete waste. During the past few months chemists in the Department of Agriculture have discovered that the entire content of corn cobs can be converted into highly useful products. Commercial plants are now being equipped to manufacture half a dozen products from them. One of these products is an adhesive of exceptionally high quality—said to be better for a number of important uses than any adhesive previously known. Another is cellulose, suitable for use in the manufacture of dynamite and various other things. We have made very good paper, using a part of the corn-cob product as filler. Another product that the plants will turn out from cobs is acetate of lime, from which acetic acid is made. And after all these things had been demonstrated our chemists discovered a very valuable by-product, furfural. Up to this time furfural has been so rare that it has sold as high as $20 a pound. Every ton of corn cobs will yield about 30 pounds of furfural as a by-product, and our specialists estimate that it can be manufactured in this way for less than 20 cents a pound. Furfural is what the chemists call a basic intermediary in dyes. That means that you may make about as many kinds of dye out of furfural as a good cook can make kinds of things to eat out of flour. They have shown me at least a dozen different shades of cloth dyed with furfural. It is highly useful, too, in the manufacture of many paints and lacquers and in the making of bakolite, the substance used in pipe stems and other articles. In addition to all that, furfural is such an excellent insecticide that it has been used to a considerable extent for that purpose, even though the price was $20 a pound. So the corn cob, instead of being a dead waste, is likely to become a commodity on the market.

Drainage Effects Saving.

"The investigations of drainage experts of the department have shown that the prairie soils of Alabama can be adequately drained by tiles placed 70 to 75 feet apart instead of from 20 to 30 feet apart as was formerly thought necessary. This is true of 2,500,000 acres of land, and, if applied to all of it, will save the farmers of that section alone more than the total of the appropriations for the drainage division of the department since its organization. Just as important savings are being effected in irrigation as in drainage work; and yet these are only two of the lines of activity conducted by the Bureau of Public Roads. Its largest function is to develop a system of good roads, a matter in which you business men are just as much interested as are the farmers. It administers the Federal Aid Road Act, and will supervise this year the cooperative expenditure by Federal and State agencies of more than $600,000,000.

"As an indication of what the Government is doing to aid in the production of farm products through the Department of Agriculture, I might mention very briefly the work of some of its bureaus:

"The Bureau of Soils examines and maps the various soils of the country and indicates the crops and types of farming adapted to each. It also investigates methods of producing chemical fertilizers, atmospheric nitrogen, phosphates, and potash.

"The Bureau of Plant Industry breeds improved strains and varieties of plants, introduces plants of possible economic value from foreign countries, tests seeds, experiments with different methods of cultivation, different combinations of fertilizers and soils, and all the artificial and natural factors affecting plant growth, and especially studies plant diseases and methods of overcoming them.

"The Federal Horticultural Board inspects nursery stock and plants for diseases and insect pests and quarantines against the introduction into a State or into the United States of plant material carrying diseases or insects.

"The Bureau of Animal Industry studies all phases of animal husbandry and especially the diseases of farm animals, their prevention and cure. It administers the animal quarantine laws and is conducting active campaigns to eliminate hog cholera, the cattle ticks, and tuberculosis of animals, and also to build up the live-stock industry of the country.

"The Bureau of Entomology studies plant and animal insect pests and develops methods of extermination.

"The Insecticide and Fungicide Board inspects insecticides and fungicides to insure a high standard of purity and efficiency.

"The Weather Bureau forecasts the weather, storms, freezes, and frosts so that the farmers may take such measures as may be practicable to protect their crops, their orchards, and their live stock.

"The Forest Service administers the national forests, and has developed a national policy for the conservation and economic utilization of the forests of the country and the profitable use of farm woodlots.

"The States Relations Service coordinates all the extension activities of the Federal Department of Agriculture for bringing the results of the work of the investigational bureaus and specialists directly to the farmers through the extension services and the county-agent system.

"The Office of Farm Management specializes on the farm business, including cost of production, in the same way that efficiency experts specialize on business methods in other industries. It also studies various phases of country-life betterment.

Crop Reports Widely Circulated.

"The Bureau of Crop Estimates is the statistical clearing house of the Department of Agriculture. It estimates the acreage, growing condition, yield per acre, present and prospective production and supply of crops, and numbers of live stock on farms, bridging the gap between the decennial censuses. It prepares and issues the Monthly Crop Reporter and the Statistical Appendix to the Yearbook of the department. It transmits to the International Institute of Agriculture at Rome the monthly crop reports for the United States and receives in return the crop and live-stock estimates for all

adhering countries of the world. It issues weekly crop notes for each State and semimonthly crop and live-stock notes for foreign countries. Its estimates of present and prospective production and supply have a direct bearing upon the marketing of farm crops. Through its corps of trained field agents the bureau has the means of ascertaining quickly, on a country-wide basis, what is taking place on the farms of the country with respect to every phase of crop and live-stock production.

"The Bureau of Chemistry, besides enforcing the pure food and drugs law, does a great many things of direct benefit both to producers and consumers of farm products, among which may be mentioned that of finding new uses for waste products.

"The Bureau of Biological Survey studies wild animals and birds and assists in getting rid of rodent pests, of other troublesome or dangerous animals, and of some species of birds that sometimes become destructive to crops. It protects the game resources of the country as well as the migratory birds.

"The Division of Publications has issued more than 1,000 Farmers' Bulletins and almost as many technical bulletins, covering the work that has been done through the years by all the bureaus. New bulletins are constantly being prepared—faster than appropriations are made covering the printing of them. In these lists of bulletins any farmer or farm woman may find a fair library on any particular subject in which he or she may be interested.

Big Returns on Investments.

"The Department of Agriculture, through the work of these bureaus, makes for its stockholders—the people of the United States—a profit of several times 1,000 per cent per year on all the money invested in it. As evidence that it is paying big returns, I will give but a few typical items out of a large number that could be cited. We spent $250,000 establishing durum wheat in this country. The durum wheat now produced here is worth $50,000,000 a year. We spent less than $200,000 introducing a rice and establishing the industry in California. The rice crop in that State is now worth $21,000,000 a year. We spent $40,000 introducing Egyptian cotton, breeding it up and establishing the industry in the arid regions of the Southwest. The American-Egyptian cotton crop is now worth $20,000,000 a year and is increasing every year. We discovered a serum that prevents hog cholera, and its use, as demonstrated by the department, has reduced the losses from that disease by $40,000,000 a year.

"We searched the world for grain crops that could be grown in the Southwest, where corn does not succeed. We spent a few thousand dollars in introducing the grain and forage sorghums. Last year 125,000,000 bushels of kafir and other grain sorghums were produced there.

"The department found cull oranges and lemons in California selling for $5 a ton. It established a citrus-fruit laboratory to discover uses for these fruits. As a result growers are now receiving from $25 to $30 a ton for culls, and the citrus by-products plants, established since the department demonstrated the uses for cull fruit, produced last year 6,000,000 pounds of orange marmalade and jelly, 1,500,000 pounds of citric acid, 500,000 pounds of citrate of lime, and 50,000 pounds of lemon oil.

Introduced Navel Orange.

"The department introduced the naval orange from Brazil. Last year 13,000,000 boxes of California naval oranges were distributed among the people of this country.

"We introduced, in spite of great difficulties, the Smyrna fig from Turkey. The industry is established, and the United States will soon be producing enough high-grade figs to meet its own demands.

"We have introduced the date from Egypt, established it, improved it, and the United States is to-day producing the finest dates grown anywhere in the world.

"The Panama Canal could not be completed until yellow fever was overcome, and nobody knew what caused yellow fever. Then a scientist in the Bureau of Animal Industry discovered that splenetic fever of cattle is caused by a tick. That opened up the field of insect causation of disease, revealed the mosquito as the carrier of yellow fever, and the control of this disease made possible the completion of the Panama Canal.

"When that discovery was made the cattle-fever tick infested an area of more than 729,000 square miles and caused a loss of from $40,000,000 to $60,000,000 a year. The Department of Agriculture has eradicated the tick in 509,000 square miles of this territory and according to present plans will have the remaining 220,000 square miles free of ticks by the end of 1923.

"The cotton boll weevil has been one of the most stubborn enemies of production that the department has ever had to deal with, but our experts have at last found how to control the pest by dusting the field with calcium arsenate. Here is what it did on an abondoned field—a field where the weevils were so numerous that the farmer had given up all hope of getting a crop from it. The department men went in and cultivated it. They dusted a strip down the middle and left the two strips on the sides unpoisoned. One of the unpoisoned strips made 48 pounds of cotton to the acre and the other 60 pounds. The poisoned strip produced 480 pounds of cotton to the acre. That meant $168 an acre more for that cotton than if the plants had not been dusted.

"I could point out scores of similar things, but these are sufficient to show you that my estimate of 1,000 per cent profit is not too high.

"Considering the Department of Agriculture, therefore, as a business proposition, paying 1,000 per cent on its investment, can you imagine the board of directors of such an organization—in this case the Congress of the United States—failing not only to support it with more funds, but actually reducing its appropriations by approximately $1,200,000? Yet that is the situation we now face in the Department of Agriculture.

"The appropriations for the department are now under consideration by the conferees of the House and Senate. The original estimates called for a total of $37,672,000—an increase of approximately $3,628,000 over the 1920 act. The bill as passed by the House carried only $30,272,000—$3,627,000 less than the present appropriation, and $7,250,000 less than the estimates. After carefully reviewing its estimates and reducing them to the lowest possible minimum the department, although it still felt that the amounts originally suggested were fully justified, urged the Senate committee to provide not less than $34,948,000 for the prosecution of its activities next year. The total carried by the bill as reported by the Senate committee was $32,306,000—$1,593,000 less than the appropriation for 1920, and $2,800,000 less than the amount suggested by the department to the Senate committee, and $5,366,000 less than the original estimates. The bill as passed by the Senate carries $32,740,000, an increase of $2,468,000 over the House bill, but we are still facing a reduction of nearly $1,160,000 below the funds at present available, and, in all probability, further reductions will be made by the conferees.

Lack of Funds Curtails Work.

"It will be necessary, in the circumstances, to make serious curtailments in vital and important activities at the close of the current fiscal year. For example, the item for dairy investigations has been decreased by $37,750. This means that the valuable work which the Dairy Division is doing to aid the dairy interests of the United States, to work out better methods of preparing and utilizing dairy products, and to further develop the manufacture of such products

as American Roquefort and Swiss cheese will be seriously interfered with.

"The appropriation for cereal investigations has been cut $80,000, compelling a serious curtailment of investigational work relating to the development of improved varieties through breeding and selection, the improvement of cultural practices, and the working out of practical methods for the control of important cereal diseases. Experiments now conducted independently or cooperatively at 10 field stations will have to be discontinued and the work at others considerably decreased.

"The appropriation for the Bureau of Plant Industry, as a whole, has been reduced by nearly $300,000, exclusive of the item for congressional seed distribution, which has been eliminated from the bill by the Senate upon the recommendation of the department but which may go back in conference or upon the insistence of Members on the floor.

"The funds available to the Bureau of Entomology for combating insect pests, which cause enormous losses every year, have been curtailed to the extent of $117,000.

"The efforts of the Bureau of Markets to aid in bringing about the more systematic and orderly distribution of farm products will be seriously interfered with, because its appropriation has been cut by more than $230,000.

"The item for color investigations has been cut by approximately $31,000, and this will handicap the department in its efforts to assist in the development of the dye industry in this country and to make us independent of foreign sources.

Cut Crop Reporting $50,000.

"The appropriation for the Bureau of Crop Estimates has been cut by nearly $50,000, making it necessary to discontinue the issuance of its commercial apple, peach, potato, and truck crop reports.

"The fund for combating foot-and-mouth disease, whenever it appears in this country, has been reduced by $950,000, or from approximately $1,500,000 to $550,000. One million dollars of the present appropriation is merely an insurance fund and can be used only in case of an actual outbreak of the disease. The remaining $500,000 is available for investigating reported appearances, as well as in combating actual outbreaks. If foot-and-mouth disease actually occurs in the United States while Congress is not in session, the funds carried in the Senate bill will, in all probability be totally insufficient to cope with the situation.

"This will indicate to you some of the difficulties we will have to contend with next year on account of the lack of adequate funds. They are difficulties that will be added to those we already have.

"The work of the department, taking it all the way through, is done by as earnest and as able a lot of men and women as I have ever known. They work more hours a day and more efficiently, I believe, than the same number of employees in most private establishments in the country, and they are paid less for it. Most of them are held to their work by their love for it. A good many of them recently have been offered so much more money in private employment that, in justice to themselves and their families, they could not refuse to go. The people who left last year received an average increase in salary by leaving of more than 50 per cent. There are instances of increases running as high as 500 per cent.

Employees Faithful.

If the men and women in the department were not efficient private industries would not be offering them such increases in salary. Those remaining are just as efficient as the ones who have gone, and many of them have declined just as tempting offers, have said that in spite of low salaries and high-living costs in Washington they are going to stay where they can render the greatest service.

"These men and women are the servants of all the people of the United States. They are not asking that the Government pay them as large salaries as they could get in private employ, but they are asking that they be properly equipped for their work. And I, as your manager in charge of that establishment, am asking for them that you business men interest yourselves in them and their work and that you give them your support in the very effective ways that you can support them.

"If a private business in which you are a stockholder were paying dividends like those I have described, would you go around complaining because of some small inefficiency, saying to everybody with whom you came in contact that the management was inefficient, destroying confidence in your own business, driving your customers away, and generally doing everything in your power to deprive yourself of so remarkable a dividend?

"Now, there are instances of inefficiency, no doubt, in every department of the Government, just as there are in your business and many other businesses, but why should we—the stockholders—get into the habit of emphasizing the very small items of inefficiency and of overlooking the general result? Is it well to emphasize small inefficiencies and thereby discredit the whole? I think that kind of criticism is mighty poor advertising for our Government.

"And that, after all, is exactly the point—our Government. It is not the Government of any class. The Department of Agriculture—the branch of our Government to which I am devoting my time—belongs equally to all the people in this country. Sometimes the criticism of the Government is made because it has news value. Sometimes it is partisan. In the business of Government one group of stockholders or the other—that is, one or the other of the great political parties in national affairs—has control, that is, selects the officers for a term of years. Suppose we belong to the group that is not in control. Just the same, we are stockholders in the enterprise. We believe, of course, that our group would run the business a little better than the other group. But if, in the effort to gain control for our group, we indulge in destructive criticism until we have shaken the faith of the people in the Government, discredited the department until the citizens it is designed especially to serve lose faith in its judgment, in its purposes; in other words until we have done more damage to the business than we can make good during the time we may be in control, we have done a lasting injury to everybody—our party and especially our country.

"I know it is a perfectly natural thing for all of us, when a party other than the one to which we belong is in control, to take the ammunition furnished by the complainers, put it in our campaign guns and fire it at our own governmental institutions. But it is a temptation that, as good Americans, we ought to resist. We are all interested, I know, in having the Department of Agriculture, for example, give the most efficient service to as great a number of the people of this country as possible, regardless of what political party may be in power in national affairs. I am simply trying to point out to you that, by unwarranted and destructive criticism, we may contribute to impairing its efficiency, or the efficiency of any other department, in the hands of either party. Sometimes we forget for the moment that parties are designed to help the Government, and act as though we were perfectly justified in tearing down the Government—or any particular department—if in doing so we help our own party or shake the faith of the people in the opposition party.

"I want to tell you in all seriousness that there is no politics in the Department of Agriculture. The only persons in the department at present who are not in the civil service are myself and the Chief of the Weather Bureau. The two assistant secretaryships are not under civil service, but both of them at this time are vacant. It is my desire to see one of those places filled by a Democrat and the other by a Republican, so that no matter which way the forthcoming election goes, there will be at least one administrative official in the department who has had contact with the work of all the different branches.

Constructive Criticism Invited.

"Every member of the department heartily welcomes constructive criticism of his work. But we realize that, with the exception of myself, the men who are there now in responsible positions will, in all probability, be there in responsible positions under the next administration, whether it be Democratic or Republican, and certainly it is desirable that the department shall have the confidence and respect of the people as a whole so that the 21,000 members of the department may retain their effectiveness as public servants.

"Let us have all the constructive criticism possible, but not destructive or unjust criticism, and if there is a way of correcting any faults that may exist in this business of ours, let us do it without destroying the business itself."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Dust Fans for Grain Thrashers.

The frequency of dust explosions and fires in connection with thrashing operations in the wheat-producing section of the Pacific Northwest has led to the development of a dust-collecting fan, a device designed and perfected by engineers of the United States Department of Agriculture in cooperation with the manufacturers of thrashing machinery. This apparatus has proved so successful that many grain separators in the Pacific Northwest are now equipped with the device.

This device, when used in conjunction with a wiring system to carry off charges of static electricity developed by the thrasher, and further aided by a fire extinguisher adapted to separators, gives the thrasher a protection nearly absolute. Eventually this protection will greatly lessen the insurance risk, which hitherto has been at the prohibitive rate of $80 to $100 for each $1,000 of property insured. And this rate is only for a 20-day run.

Now it appears that the joint project of the Bureaus of Chemistry, Plant Industry, and Markets is to produce specific results in (1) protection from fire and explosion and a decrease in insurance rates; (2) the cleaning of grain, particularly of smut; and (3) the checking of wheat smut through the collection of the smut spores by the fans at the time of thrashing. This method reduces the wind dissemination of spores which otherwise would be blown out of the wind stacker to infest the fields.

Noah Webster's Story Revised.

It all depends on whose ox is gored, as Mr. Noah Webster once said in a charming little story.

Farmer Johnsonius Smithfield—call him that for short—had 35 chickens that he wanted to sell. He hauled them to town, was offered 19 cents a pound for them, refused to take it, and was hauling them back home when he met the county agent, who advised him to ship them to a near-by city, where, he believed, they would bring 22 cents a pound or more. Smithfield said he never had shipped any chickens, that he didn't believe in new-fangled ways, and that he would take the chickens back home. The county agent was so sure of his ground that he offered to guarantee Smithfield 22 cents, and on his personal responsibility paid the farmer the money in advance—$32.62.

About a week later the county agent met Smithfield and suggested that they settle up the chicken deal. "Well, how did it come out?" inquired Farmer Smithfield. "I lost $5," said the county agent, "and, of course, you are going to share it with me." "No, sir," said Smithfield, "it turned out exactly as I thought it would, and I am under no obligations to bear any of the loss." "Well," said the county agent, "I just wanted to see how you felt about it. Here is the check, $42.21, which is $9.59 more than I paid you. I got 28 cents a pound for those chickens instead of 22 cents."

Now, to follow the sequence of Mr. Webster's story, we would have to make Farmer Johnsonius Smithfield demand the turning over of that $9.59 to him; but it didn't come out that way. The county agent offered to do exactly that thing, but Farmer Smithfield said, "I won't have it that way; you keep half the profit and I'll take half. You have taught me a lesson that will be worth a great deal more than that to me and my neighbors whenever the local dealers refuse to pay us what our produce is worth."

That is not an imaginary story. The United States Department of Agriculture vouches for it and backs it up with the records of the Office of Extension Work in the South.

TB. Eradication Goes Ahead.

For the month of March, 1920, the State of Minnesota led all others in the total number of accredited tuberculin-tested herds. This State has 352 accredited herds; 4,181 cattle were tested and only 132 of this number reacted to the test.

Virginia is next according to a report on tuberculosis eradication for that month published by the Bureau of Animal Industry, United States Department of Agriculture. Virginia has 301 accredited herds; of the 1,962 cattle tested, 54 reacted. Pennsylvania is third upon the roster, with a total of 2,345 cattle tested, 150 reactions, and 149 accredited herds.

Not all the States and Territories are included in this report, but the results tabulated in 44 States, with figures of minor importance from miscellaneous sources, indicate a total of 2,128 accredited herds in the United States at the end of March. In that month 67,619 individuals were tested and only 2,828 reactions were reported. The figures indicate that an average of only 1 animal in 30, of all those tested, was afflicted with tuberculosis.

Good Work Done By Negro Agents.

Extension work for Negroes, done by Negro county agents and home demonstration agents under the direction of the United States Department of Agriculture and the agricultural colleges of the Southern States, is producing increasingly beneficial results. Addressing the recent interstate conference of white and Negro extension workers at Hampton Institute, A. C. True, Director of the States Relations Service of the United States Department of Agriculture, said that the cooperative extension movement is gaining strength throughout the country and is securing the backing of the intelligent farming people.

"Those who are in charge of extension work," he said, "not only desire to improve the agricultural output of the Nation by helping colored people, but they also desire to help all people to a higher plane of living. There are now many Negro county agents who reach thousands of people on the farm. These agents not only give agricultural instruction, but also show people how they can unite for many useful purposes."

He declared that the employment of Negro agents has been so well established and that these agents are doing such good service that their work should be encouraged and further developed.

J. A. Evans, Chief of the Office of Extension Work South, who presided over the meetings of the conference, said that the best way to secure racial understanding is for white agents and Negro agents to do good, definite work. At present there are 220 Negro agents (163 men, 57 women), distributed as follows: (*a*) County agents—Washington office, 4; Alabama, 24; Arkansas, 10; Florida, 8; Georgia, 13; Kentucky, 3; Louisiana, 12; Maryland, 2; Mississippi, 14; North Carolina, 15; Oklahoma, 9; South Carolina, 7; Tennessee, 6; Texas, 11; Virginia, 24; West Virginia, 1. (*b*) Homemakers—Alabama, 7; Arkansas, 13; Florida, 8; Georgia, 2; Louisiana, 2; Maryland, 1; Mississippi, 11; Oklahoma, 4; Tennessee, 3; Texas, 6. This work has been done at a cost of approximately $300,000.

Mr. Evans said that at present 50 per cent of the rural population of 10 South-

ern States is composed of colored people. He strongly urged students to prepare themselves for agriculture, which offers the best and broadest field of service and leadership. Mr. Evans congratulated Hampton Institute on offering a specific course which aims to train home and farm demonstration agents. "This is a step in advance of all other colleges," he said.

John B. Pierce, of Hampton Institute, special agent for Negro extension work in Virginia, West Virginia, North Carolina, South Carolina, Maryland, and Kentucky, reporting on the extension work in Virginia, said that "the Negro agents at work last year in 23 counties of Virginia reached 14,000 Negro farmers; conducted demonstrations in leading crops and live stock; organized county advisory boards, farmers' community clubs, annual county farmers' conferences, and county fairs; secured the cooperation of members of both races on questions of interest to both races; helped rural people start bank accounts; organized cooperative buying and selling organizations; secured on demonstration plats a general average corn yield of 35 bushels per acre; and organized extensive club work for boys."

"Drink More Milk" Campaigns Succeed.

Milk is plentiful on practically every farm in the Middle West, yet comparatively little is drunk by farmers' children. In fact, less milk is drunk by farm boys and girls, taking the whole country over, than by city children, statistics show. This, in spite of the fact that milk is cheaper and fresher in the country than in the city. It is said that this accounts for the fact that the proportion of under-nourished children in the country is larger than in the city.

To get more children, both in the city and in the country, to drink more milk is the endeavor this year of the dairy division of the United States Department of Agriculture, cooperating with the State agricultural colleges. During the last year six milk campaigns have been carried on in Connecticut, four in New Jersey, six in Massachusetts, and one in each of a dozen other States. The increase in milk consumption following a campaign has been from 1 to 33 per cent.

Iowa, during the last six months, has been making a special effort to improve the health of its school children in the State by inducing them to drink more milk. The work started last October with a "milk week." During the six days of lectures and demonstrations 31,900 people were reached directly and 300,000 indirectly. Libraries, schools, and clubs cooperated in the work, and during the week 4,500 school children wrote essays on the value of milk.

In one Iowa county among 308 rural school children only 114 drank any milk at all before the campaign, and but 5 brought it to school for lunch. Since then an increase in consumption of milk amounting to 15 to 25 per cent has been made in the various counties in the State, and thousands of rural school children are now carrying milk to school for lunch.

Band Birds to Learn Their Habits.

With a view to determining the exact routes followed by migratory birds, their speed of travel, the causes of unusual movements by such birds, and many other questions of interest to naturalists as well as to the public, the Bureau of Biological Survey, United States Department of Agriculture, has taken over the work heretofore carried on by the American Bird Banding Associatiton, which has headquarters at the American Museum of Natural History, New York City. This work includes the trapping of birds and the placing of identification bands on their legs, after which the birds are released. Subsequent discovery of these bands on trapped or dead birds is reported by the finders to those in charge of the work, who thereby are able to trace the movements of the birds so marked.

The department's work of bird banding will be in charge of a former member of the staff of the Colorado Museum of Natural History, who recently entered Federal employ. In addition to the questions suggested above, information will be sought concerning the theory that some birds mate for life. The theory that birds return to the nest sites of the previous year will also be investigated.

To carry on this work effectively birds must be trapped in large numbers for banding. In the immediate future it is proposed to devote special attention to the trapping and banding of water fowl on both their breeding and wintering grounds. Shore birds will be studied in a similar fashion. It is expected that the information secured will be of much value in enforcing the migratory bird treaty act. The Biological Survey asks the cooperation of all former members of the Bird Banding Association and the public in general, particularly persons in a posititon to establish trapping stations. Observers engaged in this work should be sufficiently near their traps to visit them two or three times daily so as to prevent captured birds from injuring themselves. Experiments are now under way to determine the most suitable types of traps, and arrangements are being made to supply volunteer cooperators with numbered aluminum bands. Persons interested should address the Biological Survey, United States Department of Agriculture, Washington, D. C., for further information.

Tuberculin Test Figures by Breeds.

The relative freedom of a herd of cattle from tuberculosis depends on the kind of management the herd receives rather than upon a resistance inherent in the cattle themselves. This conclusion, applying to 14 recognized breeds of cattle in the United States, is based on a study of official tuberculin-test records for nearly half a million animals. As a basis for answering inquiries regarding the prevalence of tuberculosis in various classes and breeds of cattle, the Federal Bureau of Animal Industry has compiled all of its test records since the beginning of tuberculosis-eradication work. The results, though capable of receiving many interpretations, fail to show that any breed can be considered safer from tuberculosis than another. Of 30,670 Hereford cattle tested in purebred herds, the percentage of reactors was unusually low—only 0.77 per cent. But in grade herds of the same breed the percentage of reactors was 5.11. In the Aberdeen-Angus breed the experience was reversed. Purebred herds showed 5.79 per cent of reactors, compared with 2.39 in grade herds. Among the Shorthorns 5.75 per cent of tuberculosis was found in purebred herds and 3.74 per cent in grade herds, about 77,000 animals being included in the computations.

Although it has been frequently asserted that dairy cows, by reason of closer housing, have more tuberculosis than beef cattle, the official figures fail to support that assumption. In some dairy breeds the percentages of reactors were relatively high, but in others the percentages were low. Likewise in dairy herds, as with beef cattle, there was little uniformity between the proportion of reactors for purebreds and grades representing the same breed.

Briefly, the figures indicate that the freedom of a herd from tuberculosis is influenced chiefly by the efforts of the owner to keep the herd healthy, not by the breed. Some breeders' associations have been noticeably active in encouraging their members to adopt tuberculosis-eradication measures. The figures are believed to reflect such activity.

Furthermore, the compilations disprove the assertion, sometimes made, that purebred herds are more susceptible to tuberculosis or have more of it than grade cattle. In fact, the highest percentage of tuberculous cattle in any group was for grades.

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ALASKAN FORESTS OPENED TO RELIEVE PAPER CRISIS

Secretary Meredith Announces Opportunities to Manufacturers.

Prepared to Let Contracts for Sufficient Stumpage to Supply Paper Mills for 30 Years—Payment on Easy Basis.

Secretary of Agriculture Meredith is convinced that there is a large opportunity for the Department of Agriculture to assist in the economic upbuilding of Alaska. As one means to this end, he is calling attention to the favorable situation for the establishment of paper mills in the territory, and offering cooperation by making available national forest pulpwood on terms that will provide a satisfactory operating basis.

The Secretary believes that the development of the forest and hydroelectric resources of Alaska is a practicable means of increasing the supplies of newsprint available for the United States, and eventually lessening the paper shortage, now so acute. The National Forests of Alaska probably contain 100,000,000 cords of timber suitable for the manufacture of newsprint and other grades of paper. Under careful management, these forests can produce 2,000,000 cords of pulpwood annually for all time, or enough to manufacture one-third of the pulp products now consumed in the United States.

The Alaskan forests, according to Secretary Meredith, also contain the second chief essential of a paper-manufacturing industry—water power. While no accurate survey of water powers has been made, known projects have a possible development of 100,000 horsepower; and the department estimates that a complete exploration of the national forests in southern Alaska will increase their potential power to a quarter of a million.

High Prices Favorable.

According to the Secretary, the chief drawbacks which have prevented paper making in Alaska hitherto have been the large investments required for new plants, inaccessibility and lack of development in Alaska, and the transportation charges to consuming regions in the Central and Eastern States. The Secretary expresses the belief, however, that these obstacles are more than offset by the present acute demand and high prices for all grades of paper, and that the near future should witness a movement of the paper industry into southeastern Alaska.

(*Continued on page 4.*)

MORE INTEREST IN MARKETS ABROAD URGED BY SECRETARY

Secretary Meredith sent the following telegram to the Seventh National Foreign Trade Convention which met in San Francisco May 12–15:

"I regret keenly that previous engagements prevent my attending the Seventh National Foreign Trade Convention. Please accept my best wishes for a successful conference. I think it is highly desirable that the farmer should understand the importance of foreign marketing. He loses sight of his products when they pass out of his hands into those of the local dealer. It is therefore not brought home to him, in the ordinary course of business, that if the foreign outlet were blocked there would be left in this country frequently surpluses that would exert disastrous effects on the prices he receives. In 1919 the export business in agricultural products constituted approximately 55 per cent of all export business. Agricultural products exported were worth about $4,250,000,000, while all other products exported were worth $3,500,000,000. The Department of Agriculture is prepared to furnish information regarding foreign markets. The Bureau of Markets, through its foreign marketing service, makes available information on foreign supplies, assists in establishing standard grades not only to improve the quality of American products but to facilitate trade, and investigates shipping and storage problems to aid in placing American products on foreign markets in good condition. A representative stationed in London is devoting his time to putting American producers in touch with British markets. Plans for placing additional representatives at other strategic points abroad are under consideration. Agricultural trade commissioners are sent to foreign countries when opportunities to open up new markets appear promising. Summaries of foreign trade information are published weekly in the Market Reporter of the Department. The Department seeks and desires the cooperation of all interested individuals and agencies in its efforts to promote foreign trade in agricultural products."

WHOLESALE TERMINAL MARKETS HELP LOWER CITY FOOD COSTS

Eliminate Waste and Unnecessary Expense of Poor Distribution.

Wholesale District and the Terminal Are Brought Together—Cartage Now Adds Heavy Burden to Consumer Yearly.

High food prices likely would receive a severe jolt if every city with a population of 100,000 or more would establish a city food terminal for its wholesale trade, the Bureau of Markets of the United States Department of Agriculture believes.

All large European cities have such markets and they have proved very helpful in keeping down the cost of food distribution. The cities of this country have been slow in adopting any kind of a unified terminal system. Most of them are getting along as best they can with no plan. All but those of the smallest size usually have several scattered terminals at which food products are unloaded from train, boat, or truck. Frequently the wholesale houses are located at some distance from the freight depots. This necessitates loading the products into a truck or wagon, carting them across the city, and unloading them again at the wholesale house.

All these expenses add to the price the consumer eventually pays for his food. A city terminal market eliminates this unnecessary handling and cartage, for under such an arrangement the wholesale district and the terminal are brought together, and the contents of cars or boats are unloaded directly into the wholesale houses.

Delayed Planning Costly.

In recent years both New York and Chicago have worked on the problem of establishing a central terminal market, but the size of those cities makes it a difficult problem and as yet no practical solution has been found. The situation in these cities has awakened some of the smaller municipalities—now growing at an amazing rate—to the value of a unified terminal system, and the neces-

sity of installing one before congestion increases. Los Angeles and Atlanta, through private capital, have been provided with unified terminal markets, and Seattle has a wholesale municipal market. Other cities, in addition to Chicago and New York, which are working on this problem, are Indianapolis, Memphis, Tenn., and Washington, D. C.

The idea of a terminal food market is simple. Under the plan which it involves all wholesale houses are built in a locality which is convenient to all transportation lines. It is not necessary or even desirable to have them in the heart of the city, where land values are high. The incoming cargo of food is unloaded directly from the car or boat into a wholesale house and is taken away by retail truck or wagon from the other side of the house. There is no intermediate handling or cartage. Cold-storage plants and auction rooms are also a part of a good terminal food market.

Buying Simplified.

This system of food distribution expedites the unloading of cars. Under present terminal conditions unloading is often slow, and every week in the year many cars of perishable products spoil before they reach the wholesaler or even get inside the railroad yards. A well-planned city terminal food market has adequate trackage, switches and platforms, which facilitate the unloading of the cars and prevent congestion inside and outside the yards. Quick release of cars is important if crops are to be moved before they perish. Furthermore, the retailer finds his buying simplified when all the food products are concentrated in one place, and the work of the food inspector, too, becomes easier.

The biggest saving in money, however, comes in lessened cartage and less handling and deterioration of the food. Where the wholesale district of a city is remote from transportation lines, the cartage of the food products from the freight house to the wholesaler mounts into hundreds of thousands of dollars every year, all of which is added to the bill the consumers pays. This includes the cost and upkeep of the trucks and wagons and the wages paid the men who load and unload them and drive.

Food Spoilage Costly.

To cartage costs must also be added the loss caused by the deterioration of the food products during the trip. Extremes of temperature can do considerable damage to perishable products in a short trip. The cost of the food which spoils in transportation is added to the cost of the food that is salable when it reaches the retailer and the price the consumer pays goes up another notch.

Farmers who ship on a consignment basis are able to get their remittances quicker under a terminal system than they can where the wholesale district is scattered.

In some cities the food terminals are owned by the municipality, in others they are built by the railroads or by private individuals, but in every instance central food terminals have proved their worth.

The Bureau of Markets in the United States Department of Agriculture has made a study of terminal food markets and is prepared to advise any municipality on the right ways of conducting one.

THE TASK THAT IS SET FOR US.

By Eli Lindsey, President of Barry County, Mich., Farm Bureau.

What is the Barry County Farm Bureau? Over fourteen hundred farmers of Barry County have lately formed an organization called the Barry County Farm Bureau. And for what purpose? Is it that we may gain for ourselves a larger income from our labor at the expense of others? Is it that we may shift to an already overburdened world some of the burdens which we find hard to bear? Are we organized to demand of others a net profit from our industry regardless of the problems which our neighbors have to solve? Shall we cut down production until our demands are satisfied? Shall we seek to oppress or shall we by industry and thrift and intelligent effort help to solve the problems of to-day? There was never a time when opportunity was knocking at every man's door as now. There was never a time when it was better to be alive than now. There was never a time when individual and collective effort for service would yield better returns. There was never a greater need for men and organization of real worth whose purpose is to serve where most needed. There was never a better time than now for the Barry County Farm Bureau to come into being and get busy. The great problem of the high cost of living will be largely solved when we have solved the problem of the high cost of loafing. And the purpose of the Barry County Farm Bureau is an organized effort to teach, and to learn, and to work out among the farmers of Barry County better methods of farming. To so educate and regulate our effort that we may accomplish more with the decreased man power with which we have to contend; to improve the fertility and productiveness of our farms while they are yielding an adequate return for the labor expended; to improve and increase our production of food and clothing by better live stock, more intelligent breeding and better care. And when we have helped to solve the problem of food and clothing supply, we propose to help to solve the problem of distribution, that the products of the farm may reach the consumer with the least possible expense, and also an organized effort to supply our needs of merchandise and feeds and fertilizers with the least possible cost above the cost of manufacture. We propose to cooperate with every organization which seeks to improve and encourage community and cooperative effort for better homes, better neighbors, better schools, better churches, and why? That we may help to make Barry County one of the best counties to live in in the best country on the earth.

Records of "Junior Farmers" Reveal Capacity for Achievement

Boys' and girls' club work, club leaders say, has capitalized one of the biggest assets of youth—ambition. In every neighborhood and county where club work is carried on there are boys and girls who are making records that are significant, for they show a growing capacity for achievement as well as because of the amounts actually produced. Typical of many young folks in all parts of the country is Irene Johnson, of Blooming Prairie, Minn., whose garden club work may be summarized as follows:

1916—Won first prize in home-town garden club, $3.

1917—Garden profits help buy Liberty Bond; club garden champion for southern Minnesota; free trip to Minneapolis.

1918—Large garden; half of proceeds spent for War Savings Stamps and half for clothing; club garden champion for southern Minnesota; free trip to Minneapolis.

1919—Gardened to beat the H. C. of L. Crops included one bushel of fine seed corn grown in garden, valued at $7; canned large quantities of vegetables; first prize on all vegetables exhibited at local "achivement" event; prizes at county fair for vegetables and canning; total expense $4.65, net returns $53.88.

BANK BACKS BETTER BULLS.

"Better Bulls, Bucks, and Boars Build Bigger Bank Balances," says the First National Bank of Bend, Oreg.; and to prove it they bought an $800 Rambouillet buck and 74 purebred Rambouillet ewes to distribute among sheepmen in central Oregon—the first purebred sheep in Deschutes County.

Carpet Grass Likely to Rival Blue Grass In Importance for Southern Pastures

Everyone who knows anything about American grasses knows the value of blue grass. The "blue-grass country" is famous for its pastures and for the superior qualities of the animals which graze them. The farm-famed blue grass has a counterpart in southern pastures, a plant known as carpet grass. Experts who know both grasses say that the two are about equal in grazing value. In addition to its wholesome quality, carpet grass will grow well even upon poor, sandy soils, if they are not too dry. This latter attribute makes it particularly important for use in the Coastal Plain Region where the pine timber has been cut off, and where annual fires have destroyed the humus throughout vast regions. It is believed carpet grass will play a very important part in the development of this 100,000,000 acres of waste land by the introduction of beef cattle.

Bulletin 1130, from the Bureau of Plant Industry, is devoted to the culture and utilization of carpet grass.

Introduced from West Indies.

Carpet grass has several names; "Louisiana grass" and "petit gazon" are among others. Unfortunately, many less valuable grasses are also called carpet grass. The true carpet grass is not a native growth, and seems to have been introduced from the West Indies. It is a perennial, pale green grass and spreads rapidly by sending out creeping stems, which take root at every joint and form a close, compact turf. The stems and sheaths of the grass are compressed and two edged, and this peculiarity, considered with the blunt leaf tips, will identify the true species. The seed stems are slender, two or three jointed, and are from 12 to 24 inches high. Slender spikes of flowers appear on these stems. Any reader who may be doubtful of his carpet grass can identify it absolutely by comparing the specimen with the illustrations produced in Bulletin 1130.

Carpet grass is never troublesome as a weed and one need not have the fear that he is introducing a possible plant pest.

It does not withstand fire very well, so pastures sown to carpet grass should be protected from the annual firing so often practiced. It does not seem to be at all sensitive to soil acidity, and flourishes upon soil that is poor in lime content as it does upon that which is rich in this substance.

Carpet grass grows better upon a compact soil, and for this reason thrives under grazing and trampling. A compact soil, however, is not necessary, and it will grow upon loose earth, if the favored conditions are lacking. In fact, carpet grass impresses one as having a personality so friendly to man that it will oblige him by meeting his needs more than half way. It seems willing to put up with almost any condition if by so doing it can be of use.

Demand for Seed.

Naturally, there is a great demand for carpet-grass seed, and apparently there is no good reason why the demand can not be satisfied, excepting that the farmers who have large tracts of carpet grass do not know of its popularity and make no attempt to harvest the seed crop. Here, again, the carpet grass shows a willingness to oblige. Grazing does not greatly injure the seed production: the cattle crop the leaves but leave the seed-stems untouched and ready for mowing and thrashing.

HARVESTING CARPET GRASS SEED.

The demand for carpet grass seed is far in excess of the supply. All farmers who are favorably located are urged to harvest seed to sell. Carpet grass seed is a very profitable crop.

The Department of Agriculture tells how to harvest it, as follows:

Cut the grass with a mower and handle as little as possible to avoid loss from shattering.

Thrash with a flail on a tight floor or upon canvas if the quantity of straw is small. If the crop is large a threshing machine is desirable and the air intakes to the fan should be reduced or cut off entirely to avoid blowing the light seed. Do not let the separating apparatus vibrate too rapidly.

A sieve with a mesh one-twentieth of an inch in size will clean carpet grass seed satisfactorily.

Carpet grass seed well cleaned weighs 18 pounds to the bushel.

Seeding of carpet grass can be accomplished by cutting the grass when the seed stems are fully developed and scattering this hay upon the area to be seeded. If the seed has been separated, a good stand of grass is assured by sowing pure seed at the rate of 5 to 10 pounds an acre. No preparation of the soil is necessary beyond clearing it of dead grasses and trash—usually by burning over in the winter preceding the spring when the grass is to be sown. If this is done and the spring growth of other grasses kept down by close grazing, the carpet grass will generally make a good stand. The soil should be moist at the time of seeding, and in the cut-over land, or where much shade is present, the trees should be either girdled or cut, as the grass does not stand shade very well.

The carrying capacity of a carpet-grass pasture is far in advance of any grass native to the South. One acre will keep a cow for the best five months of the year and two acres will keep a cow for from three to five months longer. Several other grasses, among them Dallis grass, lespedeza, white clover, etc., may be sown with carpet grass to good advantage for use as a winter mixture. There seem to be only two weeds which are inimical to carpet grass; these are bitter weed and dog fennel, both of which can be eradicated by mowing before their seed has ripened.

Once allowed to occupy permanent pastures, carpet grass carries out its plan of usefulness to man and his animals, and only asks that it be grazed to the limit—the closer the grazing the better this friend of the Southern farmer likes it. Carpet grass seems to have been introduced in America about 1830. It has been patiently waiting for the time, when, with the pine timber disappearing from the Coastal Plains, its opportunity to be of service in restoring waste land to the profitable uses of humanity should come.

FILMS READY TO SHOW FIGHT ON COTTON'S ARCH ENEMY

A new motion-picture film showing the eradication campaign a few years ago against the pink bollworm of cotton on the Gulf Coast of Texas, and applying it to the Louisiana and Texas regions newly infested by this dangerous pest, has been completed by the United States Department of Agriculture and is offered for showing by county agents, agricultural wokers, and all others interested in driving out the insect.

Only a limited number of copies of the film are available, and engagements for these copies will be made with the object of reaching the greatest number of people. The film is about a thousand feet long and requires about fifteen minutes for projection.

Requests for the film, which is known as "Cotton's Worst Enemy, the Pink Bollworm," should be sent preferably through county agents or State agricultural officials, but may be sent direct by responsible persons to the Department of Agriculture. The department also has made arrangements whereby copies of the film may be purchased by persons or agencies wishing to use the picture in the campaign against the bollworm.

Weekly News Letter

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Edwy B. Reid, Chief

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COLORED GLASS CUBES SHOW STANDARD FOR ROSIN GRADES

The mounting prices of rosin, together with those of other naval stores, and increasingly frequent instances of inaccurate rosin grading, have led the Bureau of Chemistry, United States Department of Agriculture, to urge more frequent resort to the sets of standard glass rosin types which were designed by the bureau to facilitate accurate grading. These sets of standard types are at the free disposal of private individuals, and in order to be easily accessible in cases of controversy are deposited at certain branch offices of the Bureau of Chemistry and with certain boards of trade in various parts of the country.

These types have been accepted as the grade standards by all trade bodies and organizations governing transactions in rosin.

Rosin is graded primarily according to its color, and each of the Government outfits includes 12 types made of tinted glass to represent the exact hues of the different grades. These are designated by letters, "X" being the highest, or best grade. These glasses are inclosed in a cubical metal box to protect them from breakage. An especially designed, short-handled adz, which is also a part of the outfit, is used for cutting out small blocks of rosin of approximately the same size as these cubes. A comparison between samples and the type blocks is made by placing one of each in the end of what is called a comparison box—a structure about 24 inches long, open at both ends, and equipped to hold 2 cubes at one end—and looking through this box toward the light. When a sample has the exact color of the type block, or is darker than the next higher type block, the grade is that of the lower or darker type block.

In order that uniform light conditions may be secured at all times, the person using the outfit points the comparison box toward the sky, with a screen of thin translucent white paper or the film furnished with the outfit between the cubes and the light. This affords a background which gives the same kind of light at all times.

The Bureau of Chemistry has only a limited number of these outfits, but is glad to lend them to responsible persons who are desirous of accurately determining rosin grades.

WAR AGAINST WATER-WEEVIL, MAJOR PEST OF RICE CROP

In spite of the unusual system of agriculture under which it is grown, rice is sometimes seriously affected by insect pests, and unless proper precautions are taken, says the United States Department of Agriculture, the damage may be very severe. There are several major and a great many minor rice pests.

The slender, milk-white grub or "maggot" of the rice water-weevil lives on the roots of rice, and whether it feeds little or much upon them kills practically all the roots that it attacks. This pruning of the roots weakens the rice plant and often kills it.

Another enemy of this staple crop of the South is the stink bug, which sucks the juices from the soft grains of rice.

The fall army worm, when it becomes abundant, works great havoc in its attack upon young rice. Other insects also, such as the rice-stalk borer, infest the rice field, and the rice planter must constantly guard his crop against them.

Farmers' Bulletin 1086, "How Insects Affects the Rice Crop," just issued by the department, tells when to plant and when to flood and drain the fields in order to reduce the number of these pests and recommends other measures to prevent attack by many minor species which normally breed in or near rice fields. Copies of the bulletin may be had free by addressing the Department of Agriculture, Washington, D. C.

ALASKAN FORESTS OPENED TO RELIEVE PAPER SHORTAGE

(*Continued from page 1.*)

"Alaska," said Secretary Meredith, "is destined to become a second Norway. With her enormous forests of rapidly growing species suitable for pulp, her water power, and her tidewater shipment of manufactured products, Alaska will undoubtedly become one of the principal paper sources of the United States. A substantial development of the paper industry in this wonderful region, combined with the intelligent reforestation of pulp lands in the older regions, should settle forever the question of a paper shortage in the United States." Within the last 10 years, he points out, the Forest Service has brought about the sale of 420,000,000 feet of saw timber in the national forests of Alaska. A number of areas suitable for pulp operations have been cruised and prepared for sale, and during the coming summer the survey of pulpwoods will be extended in order that other desirable tracts may be brought to the attention of manufacturers. Promising developments in paper manufacture, in fact, are now pending. The Forest Service has also investigated stream flow in cooperation with the Geological Survey and has collected data of value to engineers in planning power developments.

Offers Timber Contracts.

Secretary Meredith also announced that, to encourage a paper industry in Alaska, national forest timber will be offered for large installations under mutually favorable terms. The department is prepared to contract sufficient stumpage to supply paper mills for 30 years. The timber will be paid for from month to month as it is cut, obviating the necessity for large investments in raw material.

The initial prices, based upon current timber values in Alaska, are sufficiently low to make the cost of pulpwood stumpage a relatively negligible factor to the manufacturer. On several areas which have been appraised, the spruce timber is priced at 50 cents a cord and the hemlock timber at 25 cents. These rates will apply during the first five years following the installation of the plant. Thereafter prices will be readjusted at five-year intervals if current timber values in Alaska warrant, but with equitable provisions regarding maximum rates which, in no event, will be exceeded during the earlier portion of the contract.

"The Government owes it to Alaska to develop its resources and foster its economic growth," said Secretary Meredith, "and, at the present juncture, the opening up of the forests of Alaska for the development of the paper industry will supply one of the most critical economic needs of the United States to the profit and service of both Alaska and the people of the several States without in any way sacrificing or interfering with the purposes for which the forests were established."

Constant Vigilance Keeps Herds Free of Ravages of Hog Cholera

"And this hog lot?" I asked, admiring a tract of several acres surrounding a spacious hog house, neatly fenced but apparently unused. "Looks like a tip-top place for hogs; better than what you just showed me. What's wrong with it?"

"Hog cholera," replied my friend in a tone that indicated my question had touched upon a sore spot. He surveyed the place mournfully, then added: "It's ideal, and I had my hogs here until a month or so ago. But cholera suddenly broke out among them and they dropped off at the rate of 10 to 20 a day. For a couple of weeks I didn't know what was the matter and then by the time I got a veterinarian here with serum it was too late to save many of them."

"How do you explain it?" I asked, knowing him to be the sort of man who is very careful about sanitation.

"We didn't know how to account for it for some time, but finally we learned it was brought on the place by a dog. One of the small tenants in the neighborhood had a few hogs. Some of them died of cholera and instead of burning the carcasses as he should have done he buried them in a shallow ditch. A stray dog found the carcasses and brought the disease over here."

"So," I said, "you are quarantining the place?"

"Yes, and I have disinfected the building. I also intend to plow up this lot before I use it again for hogs," he replied. "And you can bet I'm taking no chances now. All of the hogs now on the place have had the preventive treatment. After sanitation, it's the only course to pursue in raising hogs. I should have called a veterinarian when I first noticed that a couple of the hogs were sick."

He was right. He had been the victim of one of the many means of spreading this pernicious and costly disease; and being at the mercy of careless or ignorant neighbors, he was forced to resort to a free use of the recognized means of prevention. He did not make the mistake of stopping here, however, but observed closely the few simple rules of sanitation emphasized by the United States Department of Agriculture.

Cooperation Desired.

Like most thinking farmers my friend looked forward to the day when by cooperation of producers in the cleaning and disinfecting of infected premises and in the proper disposal of diseased carcasses the use of antihog-cholera serum would be reduced to a minimum or better still made unnecessary at all. As an instance of what this legitimate expenditure cost the farmers of the country, in 1918 approximately $5,280,000 worth of the serum was produced. This, plus the cost of administering it, was borne by the farmers. So large an amount of money, not to mention the $60,000,000 estimated as the value of the 2,000,000 hogs stricken by cholera that year, could very profitably be turned to increasing production, which in turn would mean a healthier economic condition for the whole country.

Farmers generally have been called the land army. The comparison is good, concerning hog breeders. It is particularly so if the hog breeders are likened to a company of soldiers at drill. Each man has his position in the squad and each squad its position in the company. The success of all depends upon the way each individual performs his part. If Bill takes four paces instead of the required five in executing a movement, he will keep Jim from taking his proper three paces or worse still trip him up and send him sprawling and thus put the whole squad into confusion. In turn the whole company would feel the effect.

Each hog breeder has a very definite responsibility to his community, directly to his neighbors and indirectly to every hog breeder in the country. If he fails to care properly for his hogs and is not alert in guarding his stock against infection, he may be responsible for the introduction of cholera and its spread among the hogs of his neighbors. An infected area would be created and if not properly quarantined might easily prove a menace to producers many miles distant.

Remaining Problems.

The eradication of hog-cholera is largely a matter of education and depends to a great extent upon the cooperation given by State agencies, live-stock producers and dealers, and practicing veterinarians. A great deal of value has already been accomplished and prejudice against the use of serum has been largely overcome.

There remain other problems, though, to be completely solved and which need special attention. Among them are: The neglect on the part of owners to clean and disinfect infected premises; the promiscuous use of hog-cholera virus in the treatment of the disease by irresponsible or incompetent individuals; the failure of some farmers and officials to observe closely prescribed methods to prevent the introduction and spread of infection; the lack of restrictions in the traffic in infected animals; the improper disposal of hogs that die of cholera; and the sale, purchase, and transportation of cholera hogs by unscrupulous dealers.

All that is required of the producer is the observance of a few simple rules of precaution. Infected premises should be quarantined, sick hogs and newly purchased stock isolated, cholera-stricken ones burned and swine quarters thoroughly cleaned and disinfected. A few days each year of scraping, cleaning, and disinfecting will accomplish a great deal; and use of serum in time may save a whole herd. Constant vigilance is the price of cholera-free hogs.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended May 8, 1920:

How Insects Affect the Rice Crop. Farmers' Bulletin 1086.

Frost and the Prevention of Damage by It. Farmers' Bulletin 1096.

The Argentine Ant as a Household Pest. Farmers' Bulletin 1101.

TNT as a Blasting Explosive. Department Circular 94.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention make your request definite by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 1086; Department Bulletin 114; Department Circular 94.

STOCKMEN SUPPORT CLUB WORK.

Evidence of the high regard in which boys' and girls' club work is held in Minnesota is found in the fact that the Live Stock Breeders' Association of that State has agreed this year to help support the "baby beef" work in 30 counties, the pig club work in 50 counties, dairy calf projects in 15 counties, sheep growing by boys and girls in 15 counties, and junior stock judging in 35 counties. The support which the association gives consists in paying railroad fares of one to four club members representing each project in the various counties, so that they can attend the final Junior Live Stock Show to be held at South St. Paul this fall. At a similar show held last January 200 juniors present had their expenses paid by the same association, which also purchased the prizes and financed the exhibit.

Corn Cobs Found to Yield Furfural—Valuable in Making Dyes and Paints

Corn cobs yield a substance—furfural—from which can be made a great many kinds of dyes, several paints and lacquers, and perhaps many other useful commodities. It can be used successfully to manufacture hard resins similar to those used in making pipe stems and like articles, and it seems to have promise as an insecticide. The Bureau of Chemistry, United States Department of Agriculture, has been making a series of experiments for some time past to discover the best methods for the utilization of corn cobs and, in the process which was developed, recovered furfural as a by-product. Further experiments have shown that it can be obtained in much larger quantities by chemical treatment of the adhesive recovered from corn cobs.

Furfural has been, up to this time, a comparatively rare product and has been sold chiefly in small quantities for scientific purposes. The price is now about $17 a pound. Specialists of the Bureau of Chemistry say that it can be manufactured from corn cobs at a cost of, perhaps, 15 or 20 cents a pound. The previous scarcity and high price have prevented commercial use of furfural to any considerable extent, and the uses to which it can be put are, as yet, imperfectly known.

Its most important known use is, in chemical nomenclature, as an intermediate for dyes. A whole series of dyes may be prepared by interaction with various coal-tar products. Shades covering a very wide range have already been made and tested in the bureau.

Process Simple.

A plant handling, say, 100 tons of cobs a day would recover about a ton and a half of furfural a day as a by-product. A considerably larger quantity can be obtained from the corn adhesive, by a comparatively simple process.

Two grades of adhesive are recovered from the cobs. The first and more valuable one amounts to about 45 per cent of the weight of the cobs. One of the principal uses now contemplated for it is as a substitute for silicate of soda in the manufacture of fiber container and wall board. It is both a cheaper and a better material than silicate of soda. The cob adhesive has been tested under practical mill conditions and found suitable in every way. Other uses to which the cob adhesive may be put are labeling of containers and manufacture of coarse envelopes and paper bags. It has also been successfully tested as a sizing for walls and for the manufacture of paper-coated pasteboard.

The second adhesive is of lower grade and can be used only for such purposes as foundry cores and as a binder for the coal-dust fuel known as briquette.

By-Product Chemically Pure.

A considerable quantity of acetic acid is liberated in the process of extracting the adhesive, passes off with the vapor, is condensed, and recovered as acetate of lime. At present, the acetate of lime, from which by far the greater part of commercial acetic acid is made, is obtained by distilling wood and is very impure. The acetate of lime obtained from cobs is almost chemically pure.

The residue after these substances have been recovered from the cobs is an almost pure cellulose but possessing very little fiber. It may be used in the manufacture of dynamite, linoleum, and in every line of work where wood flour is now used. It will be used, also, as a filler for many kinds of paper.

The United States produces from 2,500,000,000 to 3,000,000,000 bushels of corn every year. That means 18,000,000 or 20,000,000 tons of cobs. A large percentage, of course, is not available for manufacturing purposes, being scattered over the farms or fed with the corn. Large quantities, however, are concentrated at central points and are easily available. The establishment of a plant for the manufacture of corn-cob products in the Ohio Valley is being contemplated. Three shellers will furnish 24,000 tons of cobs a year. The plant will operate on a basis of 100 tons a day. It will turn out cob adhesive, furfural, acetate of lime, and cellulose.

Tentative Wool Grade Types Ready for Growers' Approval

Tentative types representing various grades of wool have been prepared by the Bureau of Markets, United States Department of Agriculture, in connection with its investigational work looking toward the ultimate establishment of uniform wool standards. The types decided upon by Government experts have been prepared after careful examination of thousands of samples that represent the opinion of the trade generally as to what should comprise wool standards, and which now form the basis of commercial transactions.

It is proposed to demonstrate these types to wool growers for the purpose of determining the practicability of their application upon a commercial basis. These demonstrations will be conducted by wool experts sent out from Washington to assist the Bureau of Markets field agents.

There are now no fixed wool grades in universal application, with the result that the purchase of the producer's product is based upon arbitrary standards fixed by individual buyers. It is therefore obvious that to place the business upon a uniform basis would be decidedly advantageous to all concerned.

For several years the Bureau of Markets has been conducting investigations and making a study of wool samples collected from all States and foreign countries with regard to the possibility of establishing uniform wool standards, and the work has now reached the point where the wool experts in charge of it feel warranted in submitting their findings to wool growers for consideration. Of course, it must be understood that the work is still at an investigational stage. It would be unjust to fix grades without first securing the views of the wool growers themselves, and the types to be demonstrated are simply intended to form the basis of further investigations in the field. At the same time the types prepared represent the consensus of opinion of experts who are practical wool men, and it may very well be that but slight changes will have to be made in these types in order to produce grades acceptable to wool growers generally.

The cooperation of all wool growers is urged in connection with this work. Those interested in the demonstrations may secure full information by writing the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

DOUBLING CORN YIELDS.

Corn yields per acre in the United States could be doubled within a few years, and this could be accomplished without increase in work or expense. It is not to be understood that it is desirable to double the present corn crop, but that it is desirable to produce enough to meet all needs on a smaller number of acres and with less labor. If 60 bushels are raised on 1 acre instead of on 2 acres, the labor of plowing, harrowing, planting, cultivating, and harvesting is greatly reduced.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Substitute Rice for Costly Potatoes.

That the use of rice for potatoes, a substitution already made by many thrifty housewives, could be even more widely adopted with profit, is a suggestion of the United States Department of Agriculture, prompted by the present high prices of potatoes. The department's food specialists point out that potatoes are approximately four-fifths water and one-fifth food material, whereas in rice, as well as in most other grains, the proportions are practically reversed. Under normal conditions the prices of these two commodities usually are such as to somewhere nearly equalize the two from the standpoint of food cost.

Recently, however, potatoes have sold from $1 to $1.50 per peck, which means about 7 to 10 cents a pound, whereas rice has retailed at 15 to 17 cents a pound. So long as the price of the two foods is substantially in this relationship, it is obvious from a comparison of their food content that a given sum of money can be spent much more economically for rice than for potatoes.

The estimated production of rice in this country for the past year was 41,000,000 bushels, an increase of nearly 3,000,000 over 1918. While some export business in rice has begun to develop, the supplies for domestic consumption are considered sufficient to meet a growing demand.

The department is not so much concerned with the development of any sudden increase in demand as it is in having an increasing number of people learn the value of this product not only as a dessert but as an item ranking with other cereals and with vegetables in the menu.

Explosion Leads to Reform.

Aluminum dust caused by polishing "lip stick" containers may seem a far call from agriculture. Yet, when a quantity of aluminum dust exploded in the plant of the Aluminum Goods Manufacturing Co., at Manitowoc, Wis., resulting in the death of six girls and the serious injury of six others, it was the grain-dust explosion specialists of the United States Department of Agriculture who were in a position to diagnose the case and to assist in prescribing preventive measures against similar occurences, not only in that plant but in the plants of many dusty industries throughout the country.

The explosibility of aluminum dust is not a new discovery, but the Manitowoc catastrophe first brought it officially to the attention both of the United States Department of Agriculture and the Industrial Commission of Wisconsin. Representatives of the Office of Grain Dust Explosions Investigations of the Department of Agriculture made a thorough inspection of the damaged plant and in cooperation with representatives of the commission determined that the direct cause of the explosion was a spark from a piece of wire that had somehow got into the suction fan drawing the dust from the finishing machines, and in which a quantity of dust had apparently collected. Suggestions are now being made by which the Aluminum Goods Manufacturing Co. will be able to rearrange its suction system to minimize the danger of explosions in the future. A conference has been held with the Industrial Commission of Wisconsin, and close cooperation has been established with a view to working out a standard method of collecting dust in such way as to minimize danger in all dusty plants. The experience of the Department of Agriculture specialists in handling explosive dusts will be of value to the Wisconsin Industrial Commission. The commission is collecting samples of dust in various kinds of plants over the State and sending them to Washington for analysis and recommendations as to treatment of them.

A system is being worked out by the commission that will prevent a repetition of the horror that overtook the girls in the Manitowoc plant.

Influence of Tractor on Use of Horses.

The number of horses displaced by tractors in the corn belt is largely determined by the number it is necessary to keep for corn cultivation, and other work current at the same time which the tractor can not do. This is, perhaps, the most important of the facts brought out by an investigation recently made by the United States Department of Agriculture in seven corn-belt States, relative to the influence of tractors on the use of horses, the results of which have been published in Farmers' Bulletin 1093.

The department has drawn on the experience of 191 tractor owners, in the preparation of this bulletin, which is designed to enable the corn-belt farmer to answer for himself the following questions:

For what operations can I use the tractor?

In what operations will it displace horses in whole or in part?

How many horses will it displace on my farm?

It was found that the number of horses disposed of by the farmers in question after buying tractors was between two and three a farm. The average number of acres tillable by horses was increased 12, and the average size of the farms by a total of 22 acres. Several operators displaced horses entirely on plowing, disking, and harrowing. Few operators allowed their horses to stand idle while the tractor was in use.

The horses remaining on these farms are doing 75 per cent of the tractive work, and the tractor the remainder.

The tractors were used for an average of 29 10-hour days a year on the home farms, no records being taken of custom work. A three-plow tractor on these farms does the work of 8½ horses in plowing, disking, harrowing, and harvesting.

The results of this study further substantiate the conclusion that the principal advantage of a tractor lies in its ability to do heavy work in a shorter time than is possible with horses.

New Peach Grader Attracts Attention.

Peach growers are displaying keen interest in the new peach-sizing device perfected by the Bureau of Markets, United States Department of Agriculture. Application for a public patent covering the sizer has been granted by the Patent Office, and many requests for drawings have been received.

The machines will be used in the peach belt during the coming season. The performance of the sizer will be carefully watched by peach growers and manufacturers generally, and if the device proves to be all that is claimed for it the next peach season will doubtless find a large number of the machines in practical operation.

The object sought by the use of the machine is to handle fruit more efficiently than heretofore and at lower cost. The over-all dimensions of the machine are 24 by 15 feet, and with from 10 to 15 packers working at one time, each ma-

chine permits a run of from 2 to 3 carloads of peaches a day. The device can be operated by an electric motor of less than 1-horsepower capacity, or by a small gas engine, and can be run at half capacity, if desired. According to estimates of the designers, the machine should sell commercially at not more than $450.

It is thought that, in addition to sizing peaches the machine has possibilities for grading fruits such as apples, pears, and oranges. The device now is being tested for grading sweet potatoes.

Bamboo a Dual-Purpose Plant.

Nebuchadnezzar has attracted some centuries of curiosity as a grazing human, but he deserves no credit for the unique quality of his exploit. The Bureau of Plant Industry, United States Department of Agriculture, asserts that the natives of the Far East were eating grass in the form of edible bamboo sprouts long before the scion of Babylonian royalty adopted the diet. And now the tender sprout of the bamboo, prepared for the table in the same manner as asparagus, is declared to be a delicious spring vegetable for American tables.

It probably is news to most Americans to learn that there are several bamboo plantations of undoubted value already established in Georgia and Louisiana. Bamboo, according to scientists, is not a tree, but a giant grass. It grows like asparagus, the new plants forming from the original roots. The bamboo sprout shoots up at the incredible rate of a foot a day, and when mature has a stem 4 inches in diameter and 50 feet high. It requires no cultivation. The grown timber has an infinite number of industrial uses owing to the light composition of the wood and its long, tough fibers. It can be used for barrel hoops, ladders, trellises, etc.

It is a valuable crop. In 1902 the leading Japanese growers estimated an annual profit of $50 an acre from the sale of the edible sprouts and grown timber. Present conditions would warrant a much larger profit. An acre of bamboo will produce about 1,000 edible shoots each spring and will continue the production for 40 or 50 years without being renewed.

More general introduction is urged for the South Atlantic, Gulf, and Southern Pacific States where conditions for bamboo culture are favorable.

Inspection Service Aids Onion Dealers.

The inspection of a total of 20,000 sacks of Egyptian onions, which recently arrived at Boston and New York, illustrates the value of the fruit and vegetable inspection service maintained by the Bureau of Markets, United States Department of Agriculture, for the benefit of any shipper, purchaser, or other interested person who desires reliable information regarding the condition of any specific shipment of fruits or vegetables. Soon after the arrival of these onions, which came in lots ranging from 400 to 10,000 sacks, the Federal inspectors were able to certify the exact condition of the vegetables after their long ocean journey. Most of the onions were in good condition. The fact that this could be definitely established was of importance to those concerned, for some of the lots arrived when the market was not altogether favorable. Had there been any doubt as to the condition of the shipments it probably would have worked to the serious disadvantage of the shippers or their representatives. As it was, the sellers were able to demand a price based, for the most part, on the goods being in A1 condition.

Save Waste of Pure-Bred Bull Calves.

Nature has her own percentage rules which are as infallible, in the long run, as the dealer's margin at a Monte Carlo gambling resort. According to this inflexible law of averages, there are about as many bull calves born each year as there are heifer calves.

Every good dairyman knows the value of a pure-bred sire of good record, and what such an animal may accomplish in the way of improving a grade or scrub herd. Despite their acknowledged value, it appears that 73,000 pure-bred bull calves of dairy breeds were killed for veal or were fattened for beef in 1918.

A chart has been prepared by the Dairy Division, United States Department of Agriculture, which furnishes a graphic illustration of what happened to the pure-bred bull calves in 1918.

The line representing pure-bred Holstein-Friesian cows registered in 1918 runs out to 80,000. The line for the bulls of this breed registered during the same year extends only to 30,000. The difference, 50,000, represents the approximate number of bull calves not registered. Presumably most of them were either vealed or fattened as steers.

The Jersey breed in 1918 registered 30,000 cows and about 12,000 bulls—a loss of 18,000 pure-bred sires, many of which might be more profitably employed in the work of improving scrub herds.

Guernsey and Ayrshire totals are less, but the percentage of loss is heavy there also.

In the face of this waste it is estimated that five grade or scrub bulls are in use for every pure-bred bull. According to experts of the United States Department of Agriculture the replacement of scrub and grade bulls with good pure breds would quickly and materially raise the average production of dairy herds. One of the reasons for the surprising situation outlined is probably an underdeveloped system of distribution.

More Eggs?—Meat Scraps.

Hens given meat, fish, or milk products in their diet will lay from 38 to 66 per cent more eggs than those which have only grain food and what bugs and worms they can pick up on free range, recent experiments made by the United States Department of Agriculture show.

The birds used in the experiments were given conditions as nearly like those on a normal farm as possible. The experiments were repeated under different conditions and in different years to avoid, as far as possible, any error due to the varied characteristics of the birds.

The average farmer feeds very little meat, fish, or animal protein feed of any kind to his poultry, and consequently gets few eggs during the late fall and winter when eggs are selling at the highest prices.

In the experiments conducted on the Government poultry farm, pens of pullets on free range were fed a mash of corn meal, bran, and middlings and a scratch mixture of wheat, oats, and corn. This is a greater variety of grains than is used by many farmers. In addition the birds had absolutely free range on land where bugs, green feed, and worms were plentiful. Other pens were given the same ration, with 1 pound of commercial meat scrap added to every 4 pounds of mash.

The pullets without the meat scrap laid only 90 eggs apiece (which is more eggs per hen than the average farm flock lays), while those receiving meat scrap averaged from 125 to 150 eggs apiece.

Meat scrap is not produced on most farms, and has to be bought at a higher price than grain. It produces eggs, though, several cents a dozen cheaper than where no meat scrap is used. Milk products or fish give as good results as meat in increasings egg production.

STARTS ANTI-SCRUB CAMPAIGN.

Extension workers of the Mississippi Agricultural College are starting a vigorous drive against inferior live stock. The campaign will include enlistment of progressive live-stock owners in the "Better Sires—Better Stock" movement in which 43 States and several insular possessions are now participating. The work is aimed at the improvement of domestic animals of all kinds.

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REDUCED ACREAGES INDICATED IN POTATO AND BEAN REPORTS

High Prices for Seeds, Labor Shortage, and Unstable Markets Reasons Given.

Crop Estimates Puts Reduction in Potato Plantings at 5 Per Cent Under Last Year—Beans 29 Per Cent Less.

Reductions of 5 per cent in the acreage planted to potatoes last year and of 29 per cent in areas devoted to beans are indicated for this season in reports just received by the Bureau of Crop Estimates, United States Department of Agriculture. The reports came through the field agents of the bureau who, on May 1, inquired of growers in important producing States concerning their intended plantings. High prices for potato seed and the farm labor shortage are the principal reasons given for the reduction in potato plantings. The unsatisfactory market for beans is given as the reason for the smaller acreage planned for that crop. The reports show that for the States covered the potato acreage will be 95 per cent as large as last year, while the bean acreage will be 71 per cent of last year.

New York reports the intention to plant 97 per cent of last year's acreage in potatoes; Michigan, 90; Wisconsin, 95; Minnesota, 89; Colorado, 94; Idaho, 95; and California, 110. Aroostook County, Me., which produces 60 per cent of the potato crop of New England, intended to plant as much or more, but deep snows, strikes, and embargoes have delayed receipt of fertilizer, and plantings will depend upon the amount received in time.

Intended Bean Acreage Less.

New York reports an intended acreage in beans 90 per cent as large as last year; Michigan, 75; Wisconsin, 70; Colorado, 65; New Mexico, 80; Idaho, 100. California will plant 60 per cent of all varieties, limas being 90 per cent and other varieties 45 per cent of last year, although a poor barley crop in Sacramento and San Joaquin Valleys may increase plantings of the latter.

Final plantings of beans and potatoes will be estimated by the Bureau of Crop Estimates on July 1.

The potato crop last year was 358,600,000 bushels—54,000,000 bushels less than in 1918, and 83,000,000 less than in 1917, but 70,000,000 more than in 1916.

It was about 3 per cent smaller than the average crop of the preceding 10 years, and 6 per cent smaller than the average crop of the preceding five years. The plantings last year were large enough to have produced with an average yield a crop of 390,000,000 bushels.

(*Continued on page 8.*)

TELLS HOW BANKERS CAN HELP FARMING.

Secretary Meredith has sent the following telegram to W. F. Keyser, secretary of the Missouri Bankers' Association:

"While I found it impossible to accept an invitation to attend the meeting of the bankers of Missouri in annual convention this year, I wish to take this means of commending them for the interest they have shown in agriculture in the past and to solicit their continued cooperation in the campaign for 'better farming, better business, and better living.' There is much that the local banker can do to stimulate better business methods on the part of farmers. He can also be of material aid to the extension agencies of the United States Department of Agriculture and the State college of agriculture in reaching farmers with results of research.

"The increased demand for food by our increasing population must be met in the future largely by producing more per acre. Unless this is secured through the more general adoption of improved methods the increased production will result in ever-increasing cost per unit of product. I wish to commend especially the work of the agricultural commission of the American Bankers' Association. Its work is a recognition of the solidarity of the interests of agriculture and of the financial institutions of the United States. It is very gratifying that the bankers of the country, through their agricultural committees and commissions, are taking an active interest in the work of the Department of Agriculture and State colleges of agriculture. The bankers of Missouri can be of great service to agriculture and to the Nation by supporting in every way the efforts of these two great agencies to aid the farmers of your State in the solution of the difficult problems confronting them. I wish for the bankers of Missouri a most successful meeting."

WITH LABOR SHORTAGE ACUTE HELP SHOULD BE USED WISELY

Haymakers Advised to Plan Carefully So Fewer Men Can Do the Work.

Wider Use of Labor-Saving Machinery Will Be Necessary in Handling Large Crops—Shift Back-Breaking Work from Man to Horse.

The hay crop, even when the labor supply is normal, causes more worry, anxiety, and disappointment than any other crop. The time for harvesting is comparatively short. Other crops require attention at the same time. And the weather is to be reckoned with. This year, when farm labor all over the country is very scarce, the difficulties of haymaking will be much greater, and larger quantities of hay will be lost than usual—unless labor-saving methods are more generally employed.

A great deal of labor is wasted every year during hay harvest, say specialists of the United States Department of Agriculture, not because of actual idleness on the part of the workers, but because labor is expended unnecessarily on operations that do not utilize it to the best advantage. If an old method can be superseded by a new one that will enable the same number of men to accomplish more work in the same length of time, or fewer men to accomplish the same work in the same length of time, it will mean more hay saved, more profit to the farmer, and a better condition for the country.

Although there is a scarcity of man

labor, there are still plenty of horses on most farms, and herein largely lies the solution of the problem. On farms where considerable hay is grown methods must be adopted by which the greater part of the heavy labor is done by horses. This will necessitate the general use of certain types of labor-saving machinery, some of them not so common in the East, which have been thoroughly tested and proved satisfactory in the western part of the United States. The small hay grower, however, need not make a very heavy investment in new haying apparatus, for by rearranging the working of his crew and using a little more horse labor for the hard work he can add considerably to the efficiency of his crew.

Here are some suggestions made by the specialists for avoiding waste of labor in haymaking.

Do not run two or more mowers close together. If the front mower has any trouble that causes it to stop, all of the mowers usually wait while repairs are made on one. There is a tendency, also, for drivers to waste too much time talking when they stop occasionally to let the teams rest. A good practice when two or more machines are used is for each driver to lay off a "land" for himself and work independently, so there will be no interference from other machines.

Side Delivery Rake Is Best.

Do not turn hay by hand. It is too costly. The cheapest and most efficient way of stirring hay in the windrow is with a two-horse tedder. One man will do more work than 12 men stirring with hand forks. It is not even necessary to have a man to run the tedder. A boy big enough to drive a team will do just as much work.

A one-horse rake operated by a man makes raking very costly. A two-horse sulky rate is better, but the side-delivery rake is best. When curing is done in the swath and a hay loader is used, the crew can start taking the hay from the windrow as soon as the side delivery has made one double windrow across the field. If the sulky rake is used, the crew will have to wait until the rake has gone several times across the field. In this matter the extent of the haying operations has to be considered, of course. On very small farms the use of the side-delivery rake might not be economy.

If the weather is clear and the hay is in proper condition, there will be no necessity for hay caps or for further labor till the hay is thoroughly cured and ready to be hauled. But hay caps will pay for themselves in one year when the weather is bad. They are more especially needed with clover, alfalfa, and pea vines, all of which cure slowly.

If hay is to be bunched, the hand method is too expensive. A two-horse sulky rake can bunch 30 acres or more a day and a boy can drive it just as well as a man. Even more labor can be saved, however, by using the push rake to bunch hay after it has been raked into the windrow. It is a good plan to have two men working together to round up the bunches, since more can be accomplished than when each works alone.

It is a waste of time to pitch hay onto a small hayrack on a high-wheeled wagon. Use a large hayrack on a low-wheeled wagon.

Loading hay with pitchforks is the hardest, slowest, and most expensive way. The men are working constantly, but the horses are doing nothing most of the time. If a loader is used, the hardest part of the work is done by the horses and the men can handle about 30 per cent more hay.

Save Labor on the Stack.

The push rake furnishes the most economical method of hauling hay to the stack, barn, or hay press if the distance is not much more than one-fourth of a mile. One man, or a boy, with a good push rake and a team used to the work will handle three times as much hay as two men with a small rack on a high-wheeled wagon.

Stacking hay with a push rake and an overshot stacker mounted on wheels eliminates nearly all of the back-breaking work of the old pitchfork method. With a yield of one to one and a half tons to the acre, two men on the stack can easily handle all the hay brought in by three push rakes, accomplishing a vast saving in labor and hay over the pitchfork method. Another method not so good but still vastly better than the pitchfork method is a stacker equipment with a double harpoon fork. The outfit can be made at home and will cost very little compared with the labor it saves, but harder work is necessary to get the hay on the stack than with the overshot stacker.

When hay is to be baled from the field, one man by working in the afternoon, can round up enough hay which has been bunched by push rakes to keep the press going next morning until the dew is gone from the hay in the windrow. When the hay is not thus rounded up the crew will lose two hours or more on mornings when there is a heavy dew.

Carelessness in setting the press may result in loss of labor. When the press is properly set two men can get plenty of hay to it from the stack.

"T. N. T." Intended for Use Against Hun Now Available for Peace-Time Work

Trinitrotoluene is its proper scientific name, but the human tongue has its limitations, and so this much-talked-of explosive is generally known by its abbreviation, "T. N. T." It is a pale yellow crystalline substance much used in the late war to furnish the explosive element for shells, bombs, and the depth bombs, which did so much to check the submarine activities.

Useful for Industrial Purposes.

The sudden collapse of the German resistance found the United States Government with a large supply of T. N. T. on hand which it was not advisable to store. The Bureau of Mines demonstrated by experiment that this T. N. T. could be used for industrial purposes, and allotments from the War Department's stock were assigned to the Department of the Interior for use in the Reclamation Service, National Parks Service, Indian Service, Alaskan Engineering Commission, and to the Department of Agriculture for use in road construction work supervised by the Bureau of Public Roads.

The value of T. N. T. in road-building operations has been fully demonstrated, and the Bureau of Public Roads has published a circular to describe its characteristics, and to furnish directions for the use of the explosive in place of dynamite for blasting, ditch digging, and rock breaking. As a general rule, T. N. T. may be used for any purpose to which dynamite may be put. It is safe to handle; does not cause "dynamite headaches" as readily as the commercial explosive, and is a trifle more powerful than low-percentage dynamite.

A DAY'S LABOR IN POTATO PRODUCTION.

In the Weekly News Letter of April 14 a statement was made that with the use of improved machinery and more intelligent agriculture a farmer has been able to produce 57 bushels of potatoes with one average hour's labor. The statement should have read 57 bushels with one average day's labor.

Community Canning Kitchen Saves Products and Lessens Work at Home in Busy Season

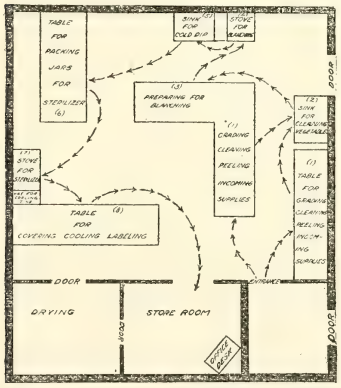
Community canning kitchens are no longer in the experimental stage, but are established and highly regarded institutions in the many localities which have had the wisdom and foresight to erect them.

Fruits and vegetables have the unfortunate habit of coming into their fullest bearing right when the season is hottest and the housewife busiest. The added task of putting up the winter's supply of fruits and vegetables seems often "the last straw" to the already overburdened woman. Yet there is much more fruit ripening in the garden than can possibly be used while it is fresh. So she gets out her cans.

Most women freely admit that canning is not particularly hard work in itself. The difficulty is, it must be sandwiched in between numerous regular tasks.

Help Difficult to Obtain.

It is almost impossible nowadays to obtain help in the home; so, especially in those homes where there are small children, as much work as possible must be sent out to relieve the burdens of the



Floor plan of a well-designed community kitchen—The various operations follow in consecutive order around the room, eliminating any retracing of steps.

housewife and mother. A community canning kitchen, either of the type to which members may bring their products to be canned at a fixed price per can or that in which members work in groups on special days with the help of modern large-scale equipment, saves garden products which would otherwise waste because the housewives of the locality have not time or strength to can them. It conserves food for those who are unable to conserve for themselves, and relieves the pressure of work in the home at a busy season.

Various types of canning kitchens are in use to-day in different parts of the country. The successful one must be adapted to the needs of the locality. Usually much more is canned in one of these kitchens than the families interested in it can use. It is customary to sell this surplus and use the proceeds toward paying expenses.

Financing the Enterprise.

Some working capital is needed at the outset for the purchase of adequate equipment. Expenses for rent, fuel, salaries, raw materials, and miscellaneous items, too, must be met for some time before returns can be realized from the products canned. It is therefore necessary to make definite plans for financing the kitchen, based on a careful estimate of probable expenses. Community kitchens have been financed in various ways—for example, by school boards, by boards of trade, by business men's associations, by loans from banks or from individuals, and by membership fees. Direct gifts from individuals or a small group of persons is, perhaps, in the end, the least satisfactory method. The membership-fee idea is the best, in the opinion of the United States Department of Agriculture, which is advocating community canning kitchens.

The selection of a building and its equipment should be considered jointly, for the type of equipment frequently depends upon the sort of building to be used. Since a primary object of the community canning kitchen is to secure the best returns for the time, effort, and capital invested, the use of modern labor-saving equipment, thoroughly adequate for the kind and volume of work to be done, will prove economical in the end.

EARLY MEASURES ADVISED TO CHECK BACTERIAL WILT

Infection with the bacterial wilt of cucurbits does not occur through soil or seed. The striped cucumber beetle and the 12-spotted cucumber beetle are both summer carriers, and probably the only means of summer transmission of the disease in the localities that have been studied. Introduction of virulent bacteria into the interior plant tissues is necessary for infection.

These points are given in a recent United States Department of Agriculture publication detailing the results of studies on the disease, which occurs in 31 States, including the territory from Vermont and Canada to Florida and west to Minnesota, Nebraska, Colorado, and Texas. The disease also probably occurs in parts of California. Of the common domestic cucurbits the disease affects cucumbers, cantaloupes, summer and winter squashes, and pumpkins, but not watermelons.

Spraying with strong Bordeaux mixture and lead arsenate paste (4–5–50 plus 2) is recommended where the disease is likely to be severe. Treatments should begin as soon as the cucumber plants develop their first true leaves and should continue at intervals of about a week until the cucumber beetles practically disappear from the field. In localities where downy mildew is also prevalent the treatments should be continued later as a partial insurance against this disease. The beetles prefer unsprayed plants as food, and undoubtedly the efficiency of wilt control would be enhanced if a slightly earlier trap crop, such as squash, were planted along the edges of the cucumber field. The beetles could be easily poisoned there with a strong insecticide.

Pulling of wilted vines during the first part of the season, or as long as it can be done without mechanically injuring the healthy plants, will greatly assist in controlling bacterial wilt if consistently done in all neighboring fields. The diseased vines should be buried, or otherwise removed from access by the beetles.

Where a few plants only are grown in garden plats, screening the hills with fine mosquito netting will prevent the appearance of the disease.

For control in greenhouses the beetles, in the first place, should be kept out. Do not grow cucurbits nor pile cucurbit refuse in the immediate vicinity of greenhouses, as this attracts the beetles and many will later find their way into the houses. If the beetles once gain entrance to a house filled with growing plants hand picking is the only remedy to be recommended until some fumigant is found that will kill the beetles without injuring the cucumber plants. Besides destroying the cucumber beetles, great care must be exercised in disinfecting all instruments used in pruning wilted vines before using them again on healthy plants. This may easily be done with a bottle of 1 to 1,000 mercuric chlorid and a sponge.

War Savings Stamps represent the ability to save intelligently and invest wisely.

Beautiful Butterflies' Ravages Cost Western Farmers Millions Each Year

"What a beautiful creature!" exclaimed a farm visitor, indicating a gorgeous yellow butterfly which had alighted upon a near-by shrub and now raised and lowered his black-edged wings in slow, graceful palpitations. The insect appeared to be the very spirit of the hot summer day; his colors were the colors and shades of brilliant sunshine and the deepest, blackest shadow, set in a delightful contrast; and its will was the will of the breeze that stirred the broad alfalfa meadows beyond the garden, where host and guest had retired to enjoy the shade.

Rather High-Priced Beauty.

"Beautiful—yes," responded the rancher, "but my appreciation is somewhat dampened by the knowledge that the pretty creature costs the alfalfa growers of Arizona and California about $1,000,000 a year. What this butterfly costs in other States—Kansas, Oklahoma, Texas, and others—I'm unable to say, but it must be an immense sum. Rather a high price to pay for beauty, isn't it? We could endow a good many art galleries with that sum; we could beautify our schools and hang Rembrandts in every class room, if there were enough of them to go around. We could bring thousands of the city children out into the fresh air and sunshine, if we had the price of that yellow fellow and his mate."

"How does he accomplish all this?" asked the interested listener. "It's a harsh indictment to lay against a creature so apparently lacking in malice. Tell me about him; where does he come from; how does he live, and what are his peculiarities?"

The rancher rose, stepped through the hedge, and came back with a handful of alfalfa, freshly pulled from the near-by field.

"You can find out all you wish to know from Farmers' Bulletin 1094, just published by the United States Department of Agriculture, but I think we have his life history and a catalogue of his crimes in this bunch of herbage.

"Here's the egg," he continued, indicating a tiny, brownish, elongated object upon the upper side of an alfalfa leaf. "That's the first stage, and is interesting only because the female butterfly lays from 200 to 500 of them in her lifetime. It has been estimated that if all the eggs of a single female butterfly hatched—and there were no losses in the progeny, or in their eggs or young—this first butterfly would be grandmother to 3,000,000,000 insects before the end of the summer.

"Fortunately for us an insect parasite destroys a good many of the eggs. Here's a ruined egg—it's black, you see, instead of brown; the parasite has been there.

Million-Dollar Damage.

Next is the larva, or worm stage; and it is in this form that the alfalfa caterpillar does the million-dollar damage. A number of these worms will strip most of the leaves from a crop in a very short time. Here is a small worm evidently just hatched, and here on this bud is a larger one. Note the green color of its body and the white stripe down each side. He is nearly an inch long and has made his growth by gorging upon the tender leaves and terminal buds of my alfalfa. Wherever there is an unusually large number of these worms, they will eat the stems, too, but their favorite food is the tender portion of the plant.

"While in this stage, the larva is victim of many conditions and is preyed upon by many creatures. A fly lays its eggs upon the worm. These hatch into grubs which penetrate and kill their host. Chickens, turkeys, and many birds destroy the worm during the feeding stage.

"Moisture and a hot, heavy atmosphere will induce the spread of a disease among the worms. See, here are worms just afflicted with the disease—note the lighter color of their skins and their sluggish movements. In a few hours they'll die and decompose into a black decaying mass. You can understand why alfalfa hay loses its feeding value if it is heavily impregnated with these corpses—the animals don't like the flavor.

"But the conditions that foster this disease are valuable in controlling the pest. Upon irrigated farms, water may be turned into the field to provide moisture which, with the heat, will start the plague and kill the worms.

"From this stage the worm enters the pupa period. He spins no cocoon, as many caterpillars do, but hangs himself, head up, among the stems and swings in a little loop of silk, like a steeple-jack—see this chap!

"You've heard of the bollworm—so injurious to corn and cotton? He comes to our aid in the fight against the alfalfa caterpillar, and, by one of those queer natural compensations, does us a favor by devouring both worms and pupa. Odd, isn't it?

"Unless the worm is destroyed, the butterfly you have admired emerges from the pupa in a few days and begins to lay eggs to establish a new cycle. This goes on all summer.

Control Measures.

"Control is accomplished by cutting alfalfa close and clean. We clear out our fence corners and ditches, and cooperate with our neighbors in clearing their land. This leaves no shelter for the caterpillar to live in from one alfalfa crop to the next, and the few which do survive find food mighty scarce, and many perish of starvation.

"Disking with a harrow over the meadows after a crop has been moved destroys many of the insects in the egg, worm, or pupa stage. Besides killing the insects which are preparing to ravage the next crop, the disking process, as everyone knows, is a mighty good thing for the alfalfa.

"We also use a brush drag well weighted and run it over the alfalfa meadows after the disking is done. The drag gets into the hollows and crevices where the harrow has not touched and crushes the insect in whatever stage it finds him. Even if the first cut has been ruined by the pest, these methods of irrigation and cultivation will insure the reduction of the caterpillar in time to save the next cutting from his attacks.

"These methods are recommended by the Department of Agriculture, and we hope to prevent most of the annual loss caused by the activities of yonder butterfly."

KENTUCKY LEADING STATE IN TOBACCO PRODUCTION

Virginia led in tobacco production in 1839, with 34 per cent, or more than one-third, of the national total. The Civil War placed Kentucky in the lead, and by 1869 that State produced 40 per cent of the whole crop. This lead has been held to the present time, the average for 1914–1918 being 35 per cent. By 1899 Virginia had fallen behind North Carolina also, when the latter State produced 15 per cent of the total crop, but North Carolina did not continuously hold second place until in more recent years. In the five years, 1914–1918, according to estimates by the Bureau of Crop Estimates, North Carolina's fraction was 18 per cent and Virginia's 11 per cent, which placed the latter State third in order. During the same time Ohio held fourth place, with 8 per cent, and in order followed Pennsylvania with 4.5 per cent, Wisconsin with 4.4 per cent, South Caroline with 3.5 per cent, and Connecticut with 3 per cent.

Cow Becomes Basis for Boy's Arithmetic—Dairy Figures Liven Dry Subject for Him

If you started out to find, among the boys of to-day in the United States, the one who is to become the first man in the world in relation to dairying, the first place you would go would not be a cotton farm in South Carolina, would it? But that would have been the place to go on that mission 30 years ago. The present Chief of the Dairy Division, United States Department of Agriculture, would have been the boy. You would have found him, probably, chopping cotton or maybe plowing corn or cutting wheat with an old-fashioned cradle. And you might have picked him for a leader in any one of half a dozen agricultural lines, but not for dairying, because there was no market for milk in his community.

How a Dairyman Was Made.

How do you suppose he happened to become a dairy specialist? Well, his aunt gave him a heifer one time. He cared for the animal, fed her, milked her, sold her calves and kept the money, and generally felt that the cow was his. His interest in that cow led to his interest in all cows.

That is one of the illustrations that the Department of Agriculture might cite in beginning its work of encouraging the formation of boys' cow clubs. There are many calf clubs. Banks have done a great deal toward encouraging boys to own calves. The plan, ordinarily, is to lend a boy money to buy a calf, which he keeps for a year, then sells, and repays the bank. The dairy specialists believe that there should be cow clubs, also—and there are a few already. A boy can borrow money to buy a heifer about ready to freshen, and make her pay for herself in from one to two years, provided, of course, that there is an available market for his milk or cream.

One of the objects sought, of course, is to interest the boy in cows and in dairying, but the dairy specialists believe that they see a way to use the cow for deepening the boy's interest in other things. They propose, wherever it can be done, that the cow become the basis of the boy's arithmetic at school.

For the average boy, it is pointed out, arithmetic is not related to life. The figures are not symbols—they are just figures. Every problem is an abstract 4 times 4, or 6 per cent of 385, extremely tiresome and uninteresting, because it does not connect with anything that the boy knows in his everyday life.

But if multiplication means 4 pounds of cream from the boy's own cow multiplied by 40 cents at the creamery door, or if percentage means the portion of the milk that can be sold as cream, then arithmetic becomes related to life, because it deals with the things that the boy touches and is interested in. It is possible to base the whole of the boy's arithmetic on his work with the cow. He would keep track of all the feed she consumes, the cost of the feed, and later on the nutrition ratios from time to time. He would keep track of the milk produced, the fat it contains, how much butter it would make, and what it would be worth at varying prices for different grades of butter. Somewhere along the line he would figure the cost of raising a calf and balance it against the price the calf would bring. He would learn arithmetic, get a basis of business, and become a practical dairyman and cattle husbandman, all by the one process—a process, too, that would keep him interested and happy.

Think the Idea Over.

Not every boy, of course, is in position to do a thing like that. The biggest limiting factor, it is realized, is the schoolteacher. There are a great many teachers of rural schools who could not teach dairy arithmetic; and there are a great many others who could teach it if they had time, but are so busy that they could not give it the necessary attention. But, all over the country, there are neighborhoods where the scheme would work, and in practically every neighborhood there are some boys who could just as well manage a cow as grow a calf for a year and then sell it.

The department does not expect that the thing will become general all at once, but suggests it as a matter to be thought over by boys, parents, teachers, progressive bankers, and others. And the thinking along this line need not be confined to boys, either. There are probably nearly as many girls as there are boys who could very well undertake the management of a cow.

KING COTTON SHARES SOUTH WITH LESSER POTENTATES

Crop diversification in the South in recent years, while known as a general fact, is definitely indicated by the crop acreages of the last 10 years as estimated by the Bureau of Crop Estimates, United States Department of Agriculture. Of the total acreage of all crops for which acreage estimates are made, the acreage of cotton was 44.5 per cent in the five years 1910–1914, and the fraction for this crop declined to 38.5 per cent in the following five years, 1915–1919. One-crop farming, which was for many years an economic burden to the South, is at last waning.

Avoidance of such farming, and greater dependence on home-grown crops and home-produced meat, instead of the hay, bacon, and other products of the northern Mississippi Valley States, was for many years advocated to the farmers of the cotton belt without much avail while cotton was selling at low prices and before Dr. S. A. Knapp began his farmers' cooperative demonstration work a dozen years ago, with its striking results, leading to the county agent system.

While cotton acreage has declined relative to total crop acreage, the acreage of wheat has increased from 4.5 to 7.4 per cent of the total, oats from 4.5 to 6.7 per cent, sweet potatoes from 0.6 to 0.9 per cent, hay from 3.2 to 5.2 per cent, tobacco from 0.3 to 0.6 per cent, and other crops in varying degrees. In this general movement, meat production, especially pork, and dairying have been made possible and have advanced strongly.

BETTER-SIRES CAMPAIGN IN GUAM.

The "Better Sires—Better Stock" movement instituted by various States and United States Department of Agriculture, has extended across the Pacific to the little island of Guam, one of the United States possessions lying between Hawaii and the Philippines. The agent of agricultural extension in Guam has written the department expressing keen interest in this movement to improve live stock, and asking that posters, literature, and 100 enrollment blanks be sent him by the next steamship. The Bureau of Animal Industry officials point out that there are peculiar opportunities for live-stock breeders on a small island to keep stock breeds pure and of superior quality. If all live-stock men in Guam will unite in a campaign of this sort they can rapidly build up distinctive breeds which eventually may gain fame equal to that of the islands of Guernsey and Jersey.

Prickly pears may be fed to live stock in a green, succulent condition right from the field, as needed. They require no curing, housing, or storage. In this they offer an advantage over most crops.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
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Edwy B. Reid, Chief

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"FOREST PROTECTION WEEK" STARTS FIGHT AGAINST FIRES

A campaign to arouse public sentiment for the better protection of forests against fire that promises to become nation-wide has been started in the West and is rapidly gaining headway, it is announced by the Forest Service of the United States Department of Agriculture. The governors of a number of western States have issued proclamations designating May 23–29 as "forest protection week," and urging all citizens that they unite their best efforts to prevent and suppress forest fires. In addition the movement has the active support of churches, commercial associations, rotary clubs, schools, fraternal societies, and a number of other organizations. The object of forest protection week is to bring forcibly home to the public the need of care to prevent fires from starting, and of energetic efforts to put out forest fires quickly, if they do start.

The new movement is unprecedented in this country and will be of much importance in safeguarding the Nation's forests and spreading the demand for their better protection, officials of the Forest Service state. The West, they say, is now generally alive to the importance of keeping fire out of the woods. This is partly because of the great value of the present stand of timber, but it is also because of growing recognition of the importance of permanent forests and stable industries.

A large proportion of the fires which have in recent years caused the loss of hundreds of millions of feet of timber in the West are man-caused and preventable. This fact has stimulated a determination to cut down the number of fires. In aggressive action the West has, on the whole, decidedly taken the lead over the East where, in many States, it is said little effort is made to protect the forests against fire.

Proclamations calling for public observance of a week have been or will be issued by the governors of Colorado, California, Idaho, Oregon, Utah, Montana, Wyoming, South Dakota, and Washington. In New Mexico the governor proclaimed Arbor Day as fire protection day. The movement is backed by strong public sentiment in practically all of the Rocky Mountain and far Western States.

GOVERNMENT ACTS TO CHECK OUTBREAK OF QUAIL DISEASE

A Federal regulation recently invoked to prohibit importations of live quail from Mexico into the United States, excepting from November 15 to April 10, inclusive, calls attention to a new outbreak of the "quail disease." This is a highly contagious and rapidly fatal disease which appears among quail in America from time to time, and it has recently developed in a shipment of bob whites received from Mexico. Several of the birds are under observation at the Division of Pathology, United States Department of Agriculture, in the hope that preventive means may be found to protect the birds.

The disease was recognized in 1906. It was found that the quail suffered from a virulent intestinal disorder caused by the development of bacillus coli, an organism always present in the bird's system. The plague is closely akin to the "grouse disease" which at irregular intervals ravages European covers, and is of such abrupt nature that it is difficult for pathologists to make satisfactory observations.

It is believed that it occurs most frequently where the birds are living under unusual conditions in confined spaces or crowded areas. This belief is based on the knowledge that birds from Mexico for import into the United States are visited by the plague. The larger part of our live quail stock comes to us from across the border. These shipments are held in quarantine for a period. It is during this quarantine period, while the quail are kept in coops or pens, that the disease usually manifests itself. A flock which seems perfectly well at night will have several dead by morning.

The Department of Agriculture recommends that shipping crates and boxes be of some light material of cheap construction so that they may be burned as soon as the quail are freed.

GIVES AWAY PUREBRED BOAR TO ENCOURAGE BETTER SIRES

Having enrolled in the Better Sires movement, which requires the use of purebred sires in all classes of live stock, a Florida stockman offers to give away a young Duroc-Jersey boar to stimulate interest in local live-stock development.

"In this county," he writes to the United States Department of Agriculture, "there is no county agent, no pig club, no calf club, no corn club, or any other effort to improve a very decadent agriculture. All this makes it very difficult to raise good live stock or good crops. We now have a registered Holstein bull and a registered Aberdeen-Angus bull, also one registered Hampshire boar and three Duroc boars in service and all of the services are free to the farmers of Jefferson County. We feel that we are rendering a practical public service, although it is not entirely unselfish."

The writer explains that better live stock in the locality will be of advantage to him as well as to the public. In addition to the free-sire service he has made public through the local press the following statement:

> **FREE.**
>
> To encourage the Better Sires movement, instituted by the United States Department of Agriculture and ably assisted by the Florida Experiment Station at Gainesville
>
> **CHEROKEE FARMS**
>
> will present a 4-months'-old Duroc-Jersey male pig to the first Jefferson County boy applying therefor who can show that he has the knowledge and is prepared to properly feed and care for the same and is the owner of a registered Duroc-Jersey sow or gilt. Assurance must be given that this male will remain in the possession of and be the property of the recipient for at least three years and that no charge will be made for its services.

The local paper in which the announcement appeared published simultaneously an editorial approving the offer, and pointing out that the experience and interest in live stock gained by whatever boy receives the boar will probably be worth more than its actual monetary value.

Stable Fly—Gauzy-Winged Apache—Plays Part of Elusive Assassin

It is curious to observe how often man's instinct misleads him; how frequently the things we fear most prove quite harmless, or even beneficial, when we know them better, while the commonplace and apparently innocent facts and conditions of our lives are charged with a deadly menace that we never guess until science uncovers the true qualities.

The house fly furnishes an instance of this. Scientists have taught us how we may protect ourselves against the fly and the mosquito, and they are now prepared to help us protect our dumb animals from insect enemies.

One insect, in particular, has the same innocent appearance as the house fly, but he conceals the impulses of an assassin under a cheerful and treacherous exterior. This savage insect is known as the "stable fly" or "stock fly," and to scientists as *Stomoxys calcitrans* L. The Bureau of Entomology, United States Department of Agriculture, has prepared a pamphlet, "Farmers' Bulletin 1097," devoted to an intimate description of this gauzy-winged Apache, and to methods for limiting his sanguinary assaults upon domestic animals. The ravages of this fly extend throughout the entire country and the problem of checking the insect is universal.

Stomoxys will attack man upon occasion, but he prefers a more helpless victim, and arranges his "hosts" in about this order of preference: Mules, horses, cattle, hogs, dogs, cats, sheep, and goats. He carries germs many times from a diseased animal to a healthy beast. There seems to be no doubt that swamp fever is, to some extent, carried in this manner among horses, anthrax among cattle, and spinal meningitis among humans.

Means of Protection.

Oils and ointments are of minor value in protecting animals from the stable fly, though a mixture of 1 gallon of fish oil, 2 ounces of oil of pine tar, two ounces of oil of penny royal, and one-half pint of kerosene will be fairly effective if applied lightly.

Stable flies do not like darkness or cold air, so a darkened stable will afford sanctuary for their victims, provided the doorways are hung with strips of burlap or other material to brush off the clinging pests when the animal enters.

A trap known as the Hodge flytrap and described in the bulletin is easily constructed, and when set in a stable window, with all other entrances and exits darkened, it is very efficient.

Trenches dug in the soil and smeared with crude petroleum upon the sides will afford some protection for hogs and sheep. In the case of the latter animal the petroleum need not be used.

Burlap blankets, with provision for the protection of the legs, are suitable for an animal that can not be given the shelter of a darkened, fly-trapped stable. Ordinary nets of cord or leather are not sufficient protection against this determined insect.

But the most efficient protection is in methods of prevention rather than in means to cure the evil. The proper time to eliminate the assassin is while he is weak and weaponless—the period before he emerges from the shell, armed and equipped. During the early stages of its cycle it is very easy to kill the embryo torment, and at that point where he is most numerous—the breeding place.

Flies Emerge in Warm Weather.

Through the winter months the larvæ or maggots, sheltered in the decaying straw and manure piles, develop slowly, change to pupæ and are ready to emerge as flies when warm weather comes. So it is easy to expose them to their worst enemies, light and lack of moisture, by thoroughly scattering the manure or straw. Straw stacks should be burned or distributed so that the light may reach the larvæ and pupæ of the fly. There is the additional merit that a certain amount of humus is restored to the soil where this waste material is plowed under. When header machines are used instead of binders, this plowing is easily accomplished.

In the warm months all stable refuse should be drawn out every three days and scattered, or else it should be made fly proof by means described in the pamphlet which may be obtained free from the Department of Agriculture.

New System of Records Devised for Farmers' Fire Insurance Companies

A system of fire insurance records intended especially for farmers' local mutual companies as an aid in simplifying and standardizing their bookkeeping is recommended by the United States Department of Agriculture and described in a bulletin recently issued. The suggestions for keeping accounts of this kind have been thoroughly tried out by several companies, and have proved most satisfactory in saving the bookkeepers' time and making readily available all the necessary information concerning the business of the company.

The principal feature of the system is a "policy register," either permanently bound or in loose-leaf form. This is designed to contain a description of the policies, written on horizontal lines extending across two opposite pages. The right-hand page of the book contains spaces for a limited number of successive assessments, which obviates the making out of separate assessment lists for each assessment levied. Other books recommended provide for the entry of cash receipts and cash disbursements, index of policy holders, and a condensed form for periodic summary of the business.

The bulletin is designed particularly to help farmers' mutual fire insurance companies—some 1,500 in all—which are relatively small local concerns, whose secretaries act as general managers and almost invariably keep the records without the help of trained bookkeepers. While the secretary or general manager of such an organization usually possesses a practical knowledge of farm risks, he often does not have a technical knowledge of bookkeeping; hence the value of such a system. The companies which have used it have found that it makes easily available the information desired by the officers of the company as well as by the State insurance department, at the same time it provides against needless duplication of work.

The Department of Agriculture will be glad to supply, on request, copies of this bulletin, which is entitled "A System of Records for Local Farmers' Fire Insurance Companies." If requested, printer's copy of the various bookkeeping forms suggested in the publication will be supplied also. So far as its facilities will permit, the Office of Farm Management will be glad to assist in the installation of the system of records suggested in the bulletin. Address inquiries to United States Department of Agriculture, Washington, D. C.

START THE HOME CANNERY.

Home canning at its best provides a supply of every fruit and vegetable that has been in season during the summer for use during the winter. Rhubarb, asparagus, and dandelion greens are in season now. Enough of each to serve once a week during the cold months will add variety to the menus next winter.

Ripe Olive Packers Cooperate to Prevent Further Danger from Botulinus Poisoning

The Bureau of Chemistry of the Department of Agriculture authorizes the statement that it has met with a gratifying degree of cooperation on the part of packers of ripe olives in improving methods to such an extent that danger from botulinus poisoning in future packs will be eliminated. Five groups of deaths traced to poison produced by the organism known as *Bacillus botulinus* have occurred in New York City, Detroit, Mich., Canton, Ohio, Memphis, Tenn., and Kalispell, Mont. All of these cases were due to the consumption of ripe olives. No fatalities have been traced to green olives.

Very extensive investigations have been made by scientists from the Bureau of Chemistry with the cooperation of the packers, and the packers have also employed specialists to study the causes of botulinus poisoning and the precautions which should be employed to prevent further difficulty. The experts agree that the trouble is not inherent in the type of container used. Whether the olives be packed in glass jars or in tin cans they may be rendered absolutely safe if proper precautions are taken to prevent the infection with bacteria during handling and if the packages when filled are sterilized at a sufficient temperature and for a sufficient period of time. It is entirely practicable, say the specialists, to sterilize both glass containers and tin cans at a temperature high enough to insure absolute sterilization.

Lack of Precaution Responsible.

Unfortunately some packs of ripe olives put up in glass as well as some in tin during past seasons were not prepared with all the precautions now know to be essential and were not sterilized at a sufficiently high temperature, and some of these goods in glass were responsible for the fatalities. It is probable that of all the ripe olives on the market but an extremely small number actully contained *Bacillus botulinus*. Of more than 2,000 individual packages collected and examined in the Bureau of Chemistry but eight were found to contain *Bacillus botulinus*, and seven of these were from the output of one manufacturer and from one batch of his output. In addition to these eight, the bureau has examined samples of some of the olives responsible for the fatalities and has also found *Bacillus botulinus* in these specimens.

Since there is a possibility of danger from any ripe olive which has been insufficiently sterilized, the Bureau of Chemistry has suggested to the industry that all ripe olives in glass or in tin wherever located be carefully inspected and that any which show the slightest degree of decomposition be destroyed. It has further suggested that all ripe olives which have not been processed at a sufficiently high temperature be returned to the packers for immediate reprocessing at a sufficient temperature to insure complete sterilization.

With few exceptions the olive packers have most heartily fallen in with all suggestions made in the interest of the public safety, and by mutual agreement entered into by practically all of the packers they are now taking steps to withdraw from the market all ripe olives in glass containers which have not been sterilized at a sufficient temperature. Similar steps are being taken by some of the packers in the case of minced olive relishes, in view of the fact that one death due to the consumption of such a product has been reported. While concerted action to remove ripe olives packed in tin and processed at a low temperature has not been taken by the packers, the fact that spoilage in tin has so consistently resulted in making a "swell" out of the can constitutes a warning to the purchaser which is not often disregarded. There is no reason to anticipate danger from properly packed and processed ripe olives, whether they be packed in tin or glass containers.

REDUCED ACREAGES INDICATED BY POTATO AND BEAN REPORTS

(*Continued from page 1.*)

The bean crop of the United States last year was about 12,000,000 bushels. While only about three-fifths as large as the crops grown on the exceptionally large acreages of 1918 and 1917, the 1919 crop was almost equal to the crops of 1914 to 1916, which averaged between 12,000,000 and 13,000,000 bushels. The planting as now indicated—about 800,000 acres—with a yield equal to the average of the last five years would produce a crop of 8,250,000 bushels.

PLANT MORE POTATOES—ADVICE TO HOME GARDENERS

If you have any garden space to spare by all means plant some of it to potatoes. This is the advice of the United States Department of Agriculture to gardeners who want to avoid the high prices for potatoes which seem to be in prospect for next fall. The early crop of potatoes in the Southern States is now well advanced and soon there will be a supply of new potatoes on all the markets. These will last but a short time, however, and can not be depended upon for use next winter. The late or main crop produces most of the potatoes that go into storage and supply the markets all through the winter months. Home gardeners can help to make this supply adequate.

Much Land Available.

Land that is now in early garden crops, in some sections may be planted to late potatoes after these crops have been removed. Any vacant or unused land, even though it may be a little rough and difficult to handle, may often be made to produce good potatoes. Even the backyard will help to produce the "spuds" for the family table if it is not too shady. There is likely to be much unused farming land this year and groups of city men could well afford to plant this land to potatoes on a share basis.

Seed potatoes are scarce and high in price, but a bushel of seed will plant one-tenth acre and should produce 12 to 20 bushels of potatoes, or a winter's supply for a family of five. Cut the seed potatoes, as they are planted, to a single good eye or two eyes if the tubers are not large. First plow or spade the ground and pulverize it, then lay off the rows 3 feet apart. If the land is not rich—and most vacant land is not—scatter 100 pounds of a good grade of fertilizer over the tenth acre or, better, apply it in the rows and mix well with the soil before planting the potatoes. Open the rows 4 or 5 inches deep with a hoe or a hand plow and drop the seed, one piece in a hill, 14 inches apart in the rows, then cover with loose soil to a depth of 4 or 5 inches. Don't wait for the plants to come up before giving the surface a good raking or two to keep the ground loose and mellow.

What and When to Plant.

Rural New Yorker, Green Mountain, and McCormick are the leading late or standard varieties of potatoes. In Wisconsin, Michigan, northern Indiana, Ohio, and western New York the first named is planted extensively. In northern New York, Michigan, Wisconsin, New Jersey, and New England the Green Mountain is a leader. In Maryland, Virginia, and southward along the Atlantic coast the old McCormick is king of the late varieties because it is a "sure cropper,"

although of inferior quality. There are two kinds, the true McCormick with flesh-colored skin and deep pink eyes and the other the white McCormick. The latter is considered the best.

In Wisconsin, Michigan, northern New York and New England where there is no early crop of any consequence, the standard crop of potatoes should be planted from May 20 to June 5 or 10, but no later. In the belt north of Washington, D. C., and the Ohio River and south of the region indicated above, roughly speaking, late potatoes should be planted from June 5 to July 1. On Long Island and in New Jersey, Maryland, and Virginia McCormick may often be planted as late as July 15 or 20 and make a fair crop. It has been found best to plant fairly early and give the potatoes plenty of time to ripen as this improves the flavor. The quality of Green Mountain is better than that of McCormick but it is not so sure a cropper in the southern territory.

In the southwestern States, Triumph and Cobbler are grown both as an early and late crop, the medium size, early grown potatoes being spread in the shade and allowed to become green or sprouted then planted as late seed.

SHEEP SCAB.

Sheep scab is a contagious skin disease of sheep, caused by a mite. It spreads rapidly and causes losses by decreasing wool production, reducing weight, and bringing about a general condition of unthriftness. It also causes the death of some of the affected animals.

The most effective treatment is dipping the diseased and exposed animals in a medicated solution which kills the mites. Two dippings, 10 to 14 days apart, are usually necessary to effect a cure.

Farmers' Bulletin 713 gives full information as to the nature of the disease and the means of eradication.

ARTIFICIAL BROODING OF CHICKENS.

Chickens are usually left in the incubator from 24 to 36 hours after hatching, without feeding, before they are removed to the brooder, which should have been in operation for a day or two at the proper temperature for receiving the chickens, say specialists of the United States Department of Agriculture. A beginner should try his brooding system carefully before he uses it. After placing the chickens in the brooder they can be given feed and water. Subsequent loss in chickens is frequently due to chilling received while taking them from the incubator to the brooder. They should be moved in a covered basket or receptacle in cool or cold weather.

Points the Housekeeper Should Know About Selecting Beef for Her Table

Have you wondered just why sirloin steaks could be purchased from one market at 30 cents while another dealer charged 50 cents for the same cut on that same day? Or why the rump roast you ordered last week was juicy and tender while the one which you ordered yesterday was tough and stringy, although you paid the same price per pound for both and purchased them from the same dealer?

The fact that sirloin steaks can be purchased at such variable prices on the same day does not necessarily mean that one dealer is underselling the other on the same article. The first may be a sirloin cut from a cow or steer of common grade while the latter is from a cow or steer of good or choice grade. The two roasts no doubt varied just as widely in grade. As a rule, a dealer habitually carries the same grade of meat, that best suited to his class of customers. However, when a dealer does carry more than one grade of meat, he usually sells the same cuts from all grades at the same price. Until the public learns that grade as well as cut determines the quality of beef and should also determine the price, cuts of low grade will be retailed at the same price that similar cuts of good or choice grade command, although the difference in wholesale price is sometimes as much as 7 or 8 cents per pound between medium grade and common meat. The housewife should know not only the cuts of meat but should learn to distinguish between these grades if she would select her meat wisely and economically.

How to Tell the Grades.

Four grades, choice, good, medium, and common, which cover all dressed beef usually offered for sale to retail meat dealers, have been adopted by the Bureau of Markets, United States Department of Agriculture. These grades are determined by the following points:

1. The color and texture of the lean meat; and the extent to which it is marbled with fat.
2. The thickness of meat covering the bone; that is the proportion of meat to bone.
3. The amount and character of the outside fat and its general distribution and color.
4. The amount of inside fat, such as kidney fat on the loin cut and the fat on the inside of the ribs.

Choice grade beef is not at present found regularly in most markets, and the supply is limited. In it the characteristics of the good grade are accentuated—pronounced marbling of fat, smooth, uniform outside covering of clear white fat, and firm fine textured flesh of light-red color.

Good grade beef has lean meat of light to medium-red color, of firm, even texture and a fairly regular distribution of fat through the lean, giving the meat a slightly marbled or mottled appearance. The fat is firm and usually a creamy white. The outer covering of fat is smooth and firm and should be evenly distributed over the loins and ribs.

Medium grade beef has meat of coarse texture and dark color which is inclined to be flabby and watery. The fat is flabby and usually yellowish in color and is unevenly distributed, there being almost no inside fat and a scanty and irregular outside covering.

Common Grade Dark.

Common grade beef has a very high percentage of bone to meat. The meat is extremely coarse in texture with no marbling of fat; is dark in color and very watery. The fat, which is very scanty, is usually of a pronounced yellow color.

The cuts of good grade beef, when compared with cuts of common grade, are much more palatable, but this is not all. A series of tests made in the experimental kitchen of the Department of Agriculture on the cooking quality of the different grades of beef shows that the shrinkage in cooking is much greater for common grade, watery meat than from good grade meat; also, the proportion of bone to meat is higher in the common grade, making the amount of cooked edible meat obtained from one pound as purchased of common grade meat considerably lower than the amount from a pound of good grade meat of similar cut.

Common sheep scab may be differentiated from conditions caused by other parasites, such as sheep ticks, common ticks, and lice, by finding the parasite and by the nature of the lesion. If the itching is caused by ticks an examination will reveal the ticks.

The value of the motor truck as an aid in marketing farm products is now well established. In bringing this about improved roads have been an essential factor.

"Junior Farmers" Big Feature In Developing Better Farm Marketing

In the little town of Spring Green, Wis., a grateful son has set aside the sum of $2,000 for a unique memorial to his father, for many years a progressive and honored member of the community. The money is to be held in trust by the University of Wisconsin and the income from it is to be used in promoting boys' and girls' club work. The son has done what the father had planned to do before his death—a plan prompted by the striking results which club work for boys and girls has achieved in the vicinity of Spring Green and other parts of Wisconsin.

This benefaction is but one of many evidences that thoughtful men are recognizing in this activity for, and by, "junior farmers," one of the big features in America's movement for better farms and better farming—big, because of the great promise which it holds for the future.

Training Farmers of To-Morrow.

While there are many important phases in this club work, the bearing which it has on the problem of how the farmer of to-morrow can better understand marketing is of particular interest, because that phase of the farmer's work, when ignorantly performed, may deprive him of all the profits from his labor. What the farmer receives at the market is, generally speaking, an index to his success or failure. Of course, he can not hope to win if his products are bad, and sometimes he can not sell them profitably if they are good. But when they are bad or poor, a big factor in promoting improved methods on the farm is a clear understanding of what the market demands and what it is going to reject or discount.

Scientists and educators have long contended that men and women understand and remember the things best which they learned in their early, formative years. But psychology and pedagogy aside, that is counted good common sense. And people are realizing more and more that it applies to buying and selling, planting and harvesting, quite as much as to book learning. This fact has been a great stimulus to the boys' and girls' club work now flourishing in all of the States of the Union.

If any farmer, a father of boys or girls, is not taking the time to teach his children fundamentals of farming in such a way that they can promote their own legitimate interests when disposing of the farm's yield, that farmer is neglecting a big opportunity to make sure of his children's success in agriculture. If he has not the time or knack to teach his children, he at least can lend hearty support to the club work in his neighborhood, because club members are becoming good marketers, as well as good stock and crop raisers.

This club work, promoted by the United States Department of Agriculture in cooperation with the various States, gives boys and girls an understanding of marketing that is fundamental. Take the boy who is a member of a baby beef club, for example. His daily care of his animal for a period of several months gives him a familiarity with live stock which adults unacquainted with the subject can acquire only with difficulty. He learns that young cattle make better gains—as much as 25 to 40 per cent more—than mature cattle on the same feed. He discovers that the herd of cattle on hand at any one time is smaller when baby beef is being raised, since there are no 2 or 3 year-olds—hence there is a larger surplus of feed and pasture.

The boy learns from his father or from the club leader that young heifers when finished as baby beef at 900 to 950 pounds often sell as well as steers, whereas when they are over 2 years of age they usually are discriminated against by buyers. Well-finished beeves when fattened for the market under 2 years of age offer greater choice in the matter of selecting the time for marketing. Early yearlings of high quality, the boy finds, can be fed either a somewhat longer or shorter time than first planned, without any material change in the finish of the animal. This is a decided advantage when the market is "weak" or "unsteady"—terms which become very clearly defined to the juvenile stock grower when the price to be received for his own animal is involved.

When to Market the Product.

He learns, too, that as a usual thing the market for this type of beef is steady and that the good feeder will seek to market his animals when their finish is absolutely the best. The splendid profits which baby beef club members have made the past year, as shown by reports to the United States Department of Agriculture, indicate conclusively that the club members have been raising their animals in the right way and by so doing have helped create a demand for their product so strong that packers are paying fancy prices in many cases.

It is not alone in the raising of baby beeves that the "juniors" are learning fundamentals that will help them in marketing. They are getting similar ground work in the raising of hogs, sheep, poultry, potatoes, sugar beets, tomatoes, and other garden products. The primary aim, of course, is better production in each case, but nowadays supply is so sensitive to the dictates of demand that the successful farmer must acquire familiarity with the market if he is to succeed—and that is one of the things which club work is providing for the "farmers of to-morrow."

SHARP DECLINE IN EXPORTS OF ANIMAL PRODUCTS NOTED

Animal products have been losing ground in their relative value to other agricultural exports from the United States since 1893. In that year they formed 29.8 per cent of the total, and, by five-year averages, fell to 16.9 per cent in 1909–1913.

The war, with its demand for animal fat and meat, brought the percentage up to 29.4—almost double what it had been in the preceding five years. The highest percentage, 33.9, was reached in 1918–1919.

Imports of animal products, on the other hand, have increased in relation to other agricultural imports, rising from 27.5 per cent in 1894–1898, to 39.1 per cent in 1914–1918. According to estimates of the Bureau of Crop Estimates, United States Department of Agriculture, animal products totaled 37.5 per cent of farm products during the five years before the war, as compared with 36 per cent during the preceding five years. During the war it declined to 34.3 per cent.

CLUB BOYS AID FARM BUREAU DRIVE.

Boy and girl club members secured more than half the farm bureau memberships in a drive made in Fairfield County, Conn.

The quota for the town of Fairfield was 25 members. Raymond Banks, a member of the boys' and girls' club in that town, secured 100 members.

In North Fairfield, whose quota was 12, Leon Ryvolt, another club boy, obtained 50 memberships.

Because of the fine work which they did in behalf of the farm bureau, each boy was given a purebred Hereford calf—and thus became the envy of all the other boy and girl club members in Fairfield County.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Binder Twine Plentiful, Cheaper.

The wheat grower need have no apprehensions as to the supply of binder twine—this season. Reports coming to the Bureau of Plant Industry, of the United States Department of Agriculture, indicate that there will be a plentiful supply of this commodity available for the American farmer. Not only will it be plentiful, but it is likely to be cheaper this year than for some years past.

Yucatan—the chief and cheapest source of henequen, from which the twine is made—produced a large crop this year; which, coupled with the termination of control of prices by the Commission Reguladora, was responsible for a drop in the price of fiber from 15 to 10 cents a pound in March. The price is now reported to be 8 cents a pound. This reduction should be reflected in the price of twine this season.

Thus far the recent revolution in Mexico has not affected the henequen industry of Yucatan and Campeche, the two important fiber-growing States of that country. It is too late now for any disruption of this industry to affect seriously the supplies of twine for this year's harvest, as practically all the fiber necessary for the present needs have already been imported to the United States.

Although there is no danger for this year's twine supply, officials of the Department of Agriculture are somewhat apprehensive over the effect that the low prices for fiber prevailing now will have upon the production of henequen during the next few years. Low prices, according to reports to the Department, are leading the growers in Yucatan to reduce their planting, with the result that a real shortage of the fiber five or six years hence is a very likely possibility.

Urge Better Protection of Cotton.

What would you say if you saw a man deliberately destroy $70,000,000 worth of clothing by placing it in a rainstorm? No one has done precisely that, but what has actually occurred is no less wasteful than that act would be.

Specialists of the Bureau of Markets, United States Department of Agriculture, conservatively estimate that during the past year cotton growers of the United States suffered a $70,000,000 cotton loss through damage to cotton by exposure to weather. They say that, after ginning, cotton is permitted to remain in the weather for months at a time instead of being properly sheltered, and that although cotton is one of the hardiest of farm products, its strength is not sufficient to withstand such exposure to the elements.

The Bureau of Markets maintains that the amount of money lost through this cause in a single season would probably be sufficient to build the warehouses needed, and that after the first year these warehouses would become practically surplus assets in the hands of the farmers. It advocates also the construction of such warehouses upon a cooperative basis, if necessary, and is prepared to advise those interested in undertaking such projects.

It is also pointed out that receipts covering cotton stored in properly operated warehouses are accepted generally as collateral for loans, the interest charges for which are more than paid for by the profits accruing to the farmer through his ability to sell his cotton as it is needed by the mills.

Clean Cars Prevent Disease Spread.

The cleaning and disinfection of railroad stock cars is an important means of preventing the spread of infectious diseases of live stock. In connection with Federal control over the interstate transportation of live stock, administered by the Bureau of Animal Industry, it is required that all such cars or other vehicles which have contained animals affected with a communicable disease, such as tick fever, scabies of sheep and cattle, hog cholera, etc., be cleaned and disinfected under bureau supervision before being again used in interstate commerce.

All live stock received at public stockyards or at official slaughtering establishments are inspected at the time they are received by employees of the Bureau of Animal Industry. If any animals are found to be affected with a communicable disease the carrier which brought them to their destination is at once notified to have the car or other vehicle set aside and thoroughly cleaned. After that has been accomplished, it is disinfected under the personal supervision of a Federal employee.

Various States also have regulations requiring that cars must be cleaned and disinfected before being used in the transportation of certain classes of live stock. The Bureau of Animal Industry cooperates with such States by having its employees at central markets supervise the cleaning and disinfection of cars in compliance with the requirements of the State to which any stock may be destined.

An idea of the magnitude of this work may be gathered from the fact that during the fiscal year ended June 30, 1919, bureau employees personally supervised the disinfection of 44,843 cars. In addition, a large number of motor trucks were handled in the same manner.

Less Maple Sugar and Sirup Produced.

Production of maple sugar and sirup has declined this year, according to the Bureau of Crop Estimates, United States Department of Agriculture. The sugar production was 7,529,000 pounds, which compares with 10,169,000 pounds in 1919, 13,271,000 pounds in 1918, and 10,839,000 pounds in 1917.

Sirup production has not fallen off in the same degree, and yet the estimate of 3,606,000 gallons for 1920 is much below the 3,854,000 gallons of 1919, the 4,905,000 gallons of 1918, and the 4,286,000 gallons of 1917.

With sirup converted to terms of sugar, the maple sugar production of 1920 amounted to 36,373,000 pounds, and this compares with the estimate of 41,005,000 pounds in 1919, 52,513,000 pounds in 1918, and 45,127,000 pounds in 1917.

The productive season of 1920 was a short one and the average number of pounds of sugar per tree, with sirup expressed as sugar, was only 1.91, while in the preceding three years the averages ranged from 2.16 to 2.72 pounds per tree.

Criticize Light Penalty in Grain Act.

Letters from the grain trade have again been addressed to the Bureau of Markets, United States Department of Agriculture, complaining that no punishment other than publication of findings is meted out to violators of section 5 of the United States Grain Standards Act. This section provides:

"That no person, except as permitted in section 4, shall represent that any grain shipped or delivered for shipment in interstate or foreign commerce is of a grade fixed in the official grain standards other than as shown by a certificate therefor issued in compliance with this Act. * * * Whenever, after opportunity for hearing is given to the owner

or shipper of the grain involved, and to the inspector thereof if the same has been inspected, it is determined by the Secretary that any quantity of grain has been incorrectly certified to conform to a specified grade, or has been sold, offered for sale, or consigned for sale under any name, description, or designation which is false or misleading, he may publish his findings."

"What good is accomplished in finding violators guilty, if nothing further is done?" ask the complainants.

The penalty prescribed in the Grain Standards Act for violations of section 5 is merely the publication of the findings of the Secretary of Agriculture. No provision is made for criminal prosecution for violations of this section; the Department of Agriculture therefore, can not take action beyond the publication of findings.

Violations of other sections of the Grain Standards act carry a penalty of a fine not exceeding $1,000, or imprisonment not exceeding one year, or both. Violations of section 4 are in the class punishable by fine or imprisonment. This section requires that persons shipping or delivering for shipment, in interstate or foreign commerce, grain for which standards have been established and which is sold by grade, shall have the grain inspected and graded by a licensed inspector.

It is felt that in some cases the publication of findings by the Department of Agriculture, and the bringing of these findings to the attention of the grain trade, serve as a greater penalty to violators of section 5 than a criminal prosecution under a provision carrying fine or imprisonment, especially in cases where only a nominal fine may be imposed. This theory is not universally agreed to, as evidenced by expressions from grain dealers favoring more drastic action in cases of flagrant violations of section 5 which involve fraud and deception. Under the present provisions of the Grain Standards act, however, it is not possible for the department to take action beyond the publication of findings.

Sugar-Beet Seed Ample for Two Years.

The supply of sugar-beet seed in the United States is ample for two years' normal requirements, according to close observers in the Bureau of Markets, United States Department of Agriculture, and with a normal domestic production of seed during 1920 and 1921 the United States should be independent of further imports to meet the requirements in 1922.

The sugar-beet seed growing industry in this country is firmly established and is gradually increasing. In 1918, 5,900,000 pounds of sugar-beet seed was produced; in 1919, 6,700,000 pounds; and the prospective production for 1920 is over 8,000,000 pounds. However, because of probable increased acreage of commercial sugar beets, which would increase the annual consumption of seed, and because of possible deterioration of some lots of seed, which would reduce the surplus, it may be a number of years before the domestic seed production equals the total requirements.

The United States has always been dependent upon other countries for the larger part of the sugar-beet seed required for planting. In a nine-year period ending June 30, 1918, an annual importation of 12,500,000 pounds of seed was made. This quantity supplemented by a domestic production during the past four years, equal to about 40 per cent of the country's total requirements, gave an increasing surplus of seed which could be held over to insure the next year's planting.

In 1919 this carry-over supply dropped to a dangerously low figure because of inability to obtain seed from Europe; and the beet sugar producing industry in the United States faced a bare sufficiency of seed for planting in 1920. Fortunately, the importation of sugar-beet seed began again with the first ship to come from German ports after the close of the war. In September, 1919, 1,795,909 pounds of beet seed came into this country, and by April 1, 1920, 15,067,078 pounds in all had been received, or about 2,500,000 pounds more than the normal annual importation. The estimated surplus from the 1919 planting was 13,600,000 pounds, and the domestic production that year was 6,700,000 pounds, so that the total supply of seed on April 1, 1920, was about 35,300,000 pounds. Allowing about 16,000,000 pounds of this for planting the commercial sugar-beet acreage in 1920, there should be a surplus of 19,300,000 pounds plus the 1920 seed production, to apply against conditions which may prevail in 1921 and 1922. In these figures no allowance has been made for possible deterioration of imported seed damaged en route to the United States or in storage.

Memphis Establishes Open-Air Markets.

Two open-air consumers' retail markets for the direct sale of fruits and vegetables by farmers to consumers have recently been established at Memphis, Tenn., and placed under the direction of a competent superintendent.

To be successful, projects of this character must be conducted along sound business lines, say experts of the Bureau of Markets, United States Department of Agriculture, who have made a study of the subject.

In the case of Memphis, those immediately concerned made a careful examination of local conditions and then communicated with the Bureau of Markets. The bureau furnished full data with regard to general marketing methods, and also had a representative make a complete survey and analysis of the situation on the ground. Suggestions were then offered as to the precise steps that should be taken to place the enterprise upon a sound basis.

The residents of Memphis are anxious to do something definite to help bring down food costs, and the Bureau of Markets feels that if the enthusiasm and good business judgment already displayed are continued the objective sought will be attained. Moreover, the establishment of these two consumers' retail markets is simply a beginning. It is expected that eventually not only will a well-equipped modern market in the downtown district be constructed but that a wholesale farmers' market will be erected and terminal market facilities developed.

Girls Practice Cookery in Supper Clubs.

To make sure that the girls in the home-making clubs, supervised by the United States Department of Agriculture and the Connecticut State Agricultural College, are able to put to practical use what they have learned in the clubs about buying, cooking, and serving food, their leaders have organized "supper clubs."

These clubs meet twice a month at the local leader's home. At the first meeting of the month a well-balanced meal is planned with the help of the leader. Each girl is assigned a certain part of the meal, for which she is responsible.

At the second meeting she brings the material and prepares, cooks, and serves her part of the supper. Adults are asked to these suppers, and the invitations are highly prized. The usual menu consists of meat, potatoes, one vegetable, hot bread, sometimes salad, dessert, and a hot drink. So far the average cost per person served has been 24 to 26 cents.

After the meal the club girls meet in a group and discuss and criticize the various articles on the menu and the serving. This constructive criticism has been found to be very valuable in making each supper a little better in every way than the preceding one.

In Litchfield County there are six of these clubs.

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COUNTRYWIDE LAND BOOM HIT HIGHEST POINT IN IOWA FARMS

Department of Agriculture Shows Results of High Values.

In Iowa Farm Lands Increased $63 an Acre Within One Year—Farms Yield Barely 3 Per Cent at Current Prices.

The land boom that swept Iowa during the summer of 1919 forced prices of farm lands in that State up to a level at which it was impossible for any but the exceptional farmer to make more than 3 per cent on his capitalization, and made it out of the question for a large proportion of the tenants to buy land on borrowed capital with a fair chance of paying out. These are among the outstanding facts brought out by an investigation of land values in 60 Iowa counties, just completed by the United States Department of Agriculture in cooperation with the Iowa State College. In commenting on these facts, department specialists take pains to point out that the current high capitalization of land in Iowa has been assumed on the basis of the actual sale of comparatively few farms (about 10 per cent) and that this high valuation is not justified by the earning power of the land.

How Data Were Obtained.

The investigation in question, conducted by the office of farm management, yielded figures on 1,414 sales made between January 1 and September 15, 1919. The conclusions drawn are based on these figures, taken together with data on farm incomes on some 400 selected farms and with supplemental data derived from farm management surveys made previously by the Iowa State College.

It was found that the increase in average value of farm lands in the counties in which the investigation was conducted was greater during the year of the boom ($63) than during the 50 years from 1850 to 1900. At this rate the increase in farm capitalization for the year in the State as a whole would be over $2,000,000,000. If the comparison is made between values in 1915 and 1920, the increase in value per acre is $121, and for the State nearly $4,000,000,000.

Asks Attention to Future Effects.

In discussing this increase, Dr. L. C. Gray, who had charge of the investigation for the office of Farm Management, says:

"So striking an increase in the value of farm lands in a single State can not but have a profound economic significance. While it is too early to determine all the economic consequences, it is time careful attention were given to the phenomenon, and that serious consideration be devoted to the problem of determining what this enormous increase may signify for the welfare and prosperity of the farming industry, and the future land policies of the United States."

An analysis of total increase in value was made for 392 cases in 22 counties. The total increase in value for these cases was $7,038,346. Of this increment,

(Continued on page 5.)

FACTS ABOUT THE BOOM.

The land boom in Iowa was part of a general increase throughout the United States during the past year, amounting to 21 per cent.

The increase was more extreme in Iowa than elsewhere, averaging $63 an acre, or 32 per cent, from March, 1919, to March, 1920.

While there were a few sales at unusually high prices, less than 5 per cent were at $400 an acre or more.

Contrary to general belief, probably less than 10 per cent of all farms changed hands during the boom.

About 25 per cent of the farms for which figures were obtained were sold twice during the boom, 4.7 per cent three times, 2.1 per cent four times or more.

Farmers constituted 65.3 per cent of the purchasers, and only 56 per cent of the sellers.

Analysis of the occupations and intentions of buyers and sellers indicates that there has been an immediate tendency toward an increase in the proportion of farms owned by farmers and also toward a decrease in the proportion to be operated by tenants.

About two-thirds of the increase in value on farms bought and resold during the boom was appropriated by residents of towns and cities.

MISBRANDED MEDICINE CASES MORE NUMEROUS LAST YEAR

Goods Seized and Violators of Federal Food and Drugs Act Prosecuted.

Charge of False and Fraudulent Labeling Brought Against Offenders—Federal Courts Dispose of Cases.

A larger number of seizures and prosecutions on the charge of false and fraudulent labeling of proprietary preparations have been made during the past year than in any other year since the enactment of the Federal Food and Drugs Act, according to a recent statement by officials of the Bureau of Chemistry, United States Department of Agriculture.

A number of such cases terminated lately in the Federal courts are reported in Service and Regulatory Supplement No. 64, issued by the bureau. The disposition of the actions in the courts are described as follows:

Disposition of Actions.

"Sal-Sano" was misbranded, it was alleged by the Government, for the reason that certain statements on the labels of the containers falsely and fraudulently represented it as a cure for diabetes. An analysis of a sample of this product showed that it consisted of 3.2 per cent water, 19.9 per cent sodium chlorid or common salt, 13.6 per cent sodium phosphate, 42.2 per cent sodium bicarbonate, and 20 per cent sodium sulphate, with small quantities of iron, aluminum, and potassium salts present as impurities. The defendant, Ernst Bischoff, trading as the Sal-Sano Co., New York, N. Y., entered a plea of guilty, and the court imposed a fine of $100.

"Indian Wyanoke" was shipped in interstate commerce by Albert M. Follett, trading as Park & Russell Co., Concord, N. H. It was alleged by the Government that the preparation was falsely and fraudulently represented as a remedy for every form of external or internal congestion, soreness, pain, inflammation, injury, or disease, especially of the throat and lungs; acute, chronic, malignant, or diphtheritic sore throat, tonsillitis, swollen glands, coughs, colds, catarrh, croup,

consumption, pleurisy, and pneumonia. In a booklet accompanying the packet, the product was represented also as a remedy for whooping cough, lung congestion, lung fever, hay fever, deafness, ringing in the ears, sores in the head, sore eyes, granulations and inflammations of the lids, sore nose, rheumatism, rheumatic headache, muscular disorders, stiff neck, lame back, spinal irritability, numbness, incipient or creeping paralysis, palsy, hives, Cuban itch, salt rheum, eczema, felons, runround, whitlow, boils, carbuncles, eruptions, enteritis, peritonitis, appendicitis, baldness, dandruff, and falling hair. An analysis of a sample of this article showed that it consisted essentially of chloroform, ammonia, menthol, glycerin, turpentine-like oils, alcohol, and water. The defendant entered a plea of guilty, and the court imposed a fine of $25 and costs.

For Hog Cholera and Sweeny.

"Gregory's Antiseptic Oil" was the basis of an action against the C. J. Lincoln Co., of Little Rock, Ark., in which the Government alleged that certain statements appearing on the label and in a circular falsely and fraudulently represented it as a cure for neuralgia, rheumatism, pneumonia, lung troubles, asthma, coughs, pleurisy, backache, burns, headache, flux, all bowel complaints, sore throat, catarrh of stomach or bowels, consumption, kidney troubles, blind staggers, distemper, glanders, fistula, poll evil, bighead, bigjaw, sweeny, blackleg, and hog cholera. This preparation was found on analysis to consist of approximately 89 per cent kerosene oil, small amounts of oil of cloves, oil of cassia, oil of sassafras, and a trace of camphor and pepper resins. The defendant entered a plea of guilty and the court imposed a fine of $50.

"McGraw's Liquid Herbs of Youth" was misbranded, the Government alleged among other things, for the reason that certain statements appearing on the cartons inclosing the bottles falsely and fraudulently represented it to be effective as a cure for all stomach, liver, and kidney diseases, and a number of other ailments; as well as to invigorate the nervous system, tone and strengthen the digestive organs, impart new life and energy to all functions of the body, and to strengthen and build up the system, while it eradicates disease. An analysis of the article showed that it contained essentially Epsom salt, senna, red pepper, quassia, alcohol, and water, flavored with methyl salicylate. The defendant, George W. McGraw, trading as the McGraw Remedy Co., Little Rock, Ark., entered a plea of guilty, and the court imposed a fine of $10.

A shipment of "P P P Prickly Ash, Poke Root, Potassium and Stillingia" tablets," which were adulterated and was seized. It was alleged by the Government, among other things, that the article was misbranded for the reason that certain statements on the cartons and circulars regarding the curative and therapeutic effect of the preparation were false and fraudulent in that the article contained no ingredient or combination of ingredients capable of producing the therapeutic effect claimed for it. No claimant appearing for the property, judgment of condemnation and forfeiture was entered, and it was ordered by the court that the product should be destroyed by the United States marshal.

An information was filed by the Government against Carroll Dunham Smith Pharmacal Co., of New York, N. Y., for the interstate shipment of quantities of articles labeled in part "acetanilid tablets," "nitroglycerine tablets," "acetyl salicylic acid tablets," "acetphenetidin and salol tablets," and "quinine sulphate tablets," which were adulterated and misbranded. Adulteration was charged because the tablets fell below the professed standard and quality under which they were sold. Misbranding was alleged for the reason, among others, that there were false and misleading statements on the labels regarding the ingredients. The defendant company entered a plea of guilty to the information, and the court imposed a fine of $25.

"Kampfmueller's Rheumatic Remedy" was the basis of an action against the Kampfmueller Rheumatic Remedy Co., of Louisville, Ky., it being alleged by the Government that certain statements appearing on the labels of the cartons and bottles falsely and fraudulently represented it as a remedy for rheumatism, and as a cure for arthritic rheumatism, articular rheumatism, inflammatory rheumatism, muscular rheumatism, and rheumatic fever. Analysis of a sample of the article by the Bureau of Chemistry showed that it consisted essentially of potassium iodid, extract from a laxative plant drug, alcohol, and water. The defendant company entered a plea of guilty, and the court imposed a fine of $25.

Community Dairy Development to Feature Department's Exhibit at National Show

The United States Department of Agriculture is going to take an active part at the National Dairy Show at Chicago, October 7–16, 1920, by showing how its various activities may be utilized in developing rural communities along specific lines. Therefore, community dairy development will feature the exhibit, and various booths will carry out this idea.

The chief attraction will be a portrayal of the community at Grove City, Pa., developed under the direction of the Department. A model with explanatory charts will show the development of this community from a basis of individual dairying, on a small scale, to its present status as an exponent of community dairying, accomplished by cooperation of local agencies, including banks, commercial clubs, etc., with the Department. A creamery, built to handle the products of the farms, now manufactures approximately one-half million pounds of butter a year, besides considerable quantities of special cheeses of the Swiss, Roquefort, Camembert, and cottage types. In addition, condensed skim milk and casein are manufactured by the most scientific methods. The creamery has made an outlet for dairy products at profitable prices, and has developed the idea of utilizing surplus milk and by-products such as skim milk.

The various smaller booths will show the products made by this creamery and methods used in the manufacture. Special attention will be given to the manufacture of Swiss cheese as developed by the Dairy Division. A small factory will operate daily making Swiss cheese, and showing the method of propagating proper cultures and correct methods of curing Swiss cheese.

More economical milk production through herd betterment will be developed by means of exhibits showing the work of associations and communities to eradicate animal diseases. Special attention will be paid to the better-sires campaign for the improvement of live stock. These herd exhibits will be illustrated by charts and models, and live animals will be used to illustrate the results obtained. A special booth will show the Department's work on animal nutrition, explaining experiments as to mineral requirements in cattle feed to induce maximum milk production.

Other exhibits will show how campaigns may be conducted to inform consumers concerning the food value and proper use of dairy products, through educational material, consisting of charts, pictures, and animated models. Special attention will be paid to the diet of children, and model meals will be demonstrated.

Up-to-date charts will show the production, manufacture, export and import, and consumption of dairy products. Actual exhibits will be made of the amount of butter and cheese consumed per capita in various countries of the world.

The Bureau of Markets' exhibit will show the market inspection of butter, the market news service, and other methods by which dairy products may be advantageously marketed. The Bureau of Plant Industry will have a display illustrating desirable practices in cropping as related to the dairy industry.

Some New Side Lights on Bird Habits— "Divorces" in Bird Land Discovered

The distances birds go from their nests in search of food, what percentage of mature birds return to the region of their birth, and to what extent birds follow identical routes in successive migrations are a few of the many questions on which the Biological Survey, United States Department of Agriculture, expects to secure important information by a recently devised scheme to assist in bird study. This consists of trapping various species of birds in different localities, attaching an identifying metal band to one leg, and then releasing the bird, with the expectation that this band will be recovered in some other place perhaps once, possibly many times. At each capture it is planned that a report shall be made to the Biological Survey of the locality and date. This banding of birds is being instituted on a very much larger scale than has ever before been attempted, and the methods employed are, as will be seen, different from those commonly used in the past

A curious discovery, learned from trapping and banding birds, may lower these feathered friends of man in the estimation of many who cite them as models of "mates for life." This is that there are so-called "divorces" in bird land. The extent to which birds divorce themselves from their mates and start on new marital careers is only one of the interesting side lights that appear from the studies thus entered upon. The question of "bird divorces" is one which has been suggested by information secured from a Cleveland bird lover, the first user of trapping methods which have been adopted by the Biological Survey. He found that in one case, at least, a retrapped bird had remated (though the former mate was still alive) and was rearing a brood with its new mate just as it had done with its "first love." The extent to which birds follow this practice is not generally known. Much as naturalists will be interested in securing information on these questions, of greater importance are the facts of practical value that will be established, permitting a more effective administration of the migratory-bird treaty act, protecting birds which travel between the United States and Canada.

At present, regulations designed to protect birds of recognized economic importance necessarily are drawn with limited knowledge of birds' habits. Within a few seasons after bird banding has been instituted in the manner purposed the Government expects to have much more accurate information than any ornithologists now possess. Because the greater part of the work will be done by volunteers, the cost will be relatively small. The Biological Survey wishes to secure the services of a large number of competent volunteers in all parts of the country to trap birds and band their legs with small metal bands before releasing them, so that a large amount of accurate data regarding the habits of feathered creatures can be secured. After this cooperation is well established, undoubtedly other cases of "divorces" in bird land will be reported.

Develop Fondness for Traps.

Curiously enough, many birds instead of fearing traps develop a fondness for them, probably because they find them a source of ample feed which can be secured without danger to themselves. While this trait occasionally is something of a nuisance to the trapper, it often is of great assistance. It is believed that birds, having learned to recognize traps, will be apt to go to them for feed in the course of their migrations, and so when caught, will furnish material for ornithologists' reports.

The Biological Survey asks that all persons finding banded dead birds send the bands, or a report of the band numbers, to the Department of Agriculture at Washington, together with a memorandum stating the circumstances involved. All persons having a knowledge of bird life, who are desirous of cooperating in the nationwide bird-banding work now being instituted, are invited to communicate with the Department at Washington, D. C.

CONFIDENTIAL—FOR BOYS AND GIRLS ONLY.

By E. T. Meredith, Secretary of Agriculture.

I want to say just a few words to the farm boys and farm girls, and the older people need not bother to read it at all.

Now, you and I know that the boys' and girls' club work represents one of the most important lines of agricultural activity in the United States to-day. I believe it is important, because it has such large possibilities. We men and women who are trying to improve farming and farm life will be out of the game when you boys and girls are just reaching the prime of life. You have the advantage of us, because you are learning the principles of good agriculture and home making while you are still young enough to learn to the best advantage and to apply in a practical way the knowledge thus gained throughout your whole lives.

Even as boys and girls you are accomplishing more good than can be measured. The good that you will be able to do will increase as you grow older and, when you become full-grown men and women, you can supply for the agricultural forces of this Nation a leadership such as the world has never known before.

I congratulate the boys' and girls' club members. And I would like to ask a favor of the boys and girls who are not members of the clubs. We are trying—the United States Department of Agriculture, the State agricultural colleges, and a great many other people—to make the farms of this country more profitable and home life on the farm more pleasant. I wish the rest of you boys and girls would join with those who are already members of the clubs and help us in accomplishing this great service for our common country. It is a patriotic thing to do; and it is a service that can not be rendered by anybody except you boys and girls.

The year 1920 should be the biggest year in the history of boys' and girls' club work—and I am confident that it will be. The country is facing a difficult situation because so many men have left the farms to work in the city. The good work that the club boys and girls can do will help to overcome that handicap—and the club boys and girls will do that kind of work this year. It may hearten you to know that many of us here in the Department of Agriculture look upon the boys' and girls' clubs much as Cæsar must have looked upon the Tenth Legion or Napoleon upon the Old Guard. The other forces may fail, but we know that we can rely on you.

I might not be willing to see you undertake such serious service if I did not know that, while you work hard, you play joyously together. I am sure that the boys and girls in the clubs have better times than the boys and girls who are not in the clubs, and that is an additional compensation to you for the hard work you do in the club work.

Prickly pear will thrive where the rainfall is too irregular for most standard farm crops. Its yields are large, cumulative, and increase from year to year, so that a heavy tonnage may be had from small areas for use at critical periods.

A flock of scabby sheep will infect the roads, trails, sheds, yards, bed grounds, pastures, ranges, and the ground around the watering places. It is therefore important that the flock receive proper treatment as soon as the disease appears, before the infection becomes scattered over the premises.

Cashing in War Savings Stamps now is like digging up crops before they are ripe.

CAN WIPE OUT COTTON PEST, SECRETARY MEREDITH WRITES

Results in Small Areas Show Eradication of Pink Bollworm Possible.

In a Letter to Gov. Hobby, of Texas, the Secretary Urges Persistent Efforts Against Insect in Texas and Louisiana.

The following letter from Secretary Meredith to Gov. W. P. Hobby, of Texas, discussing the pink-bollworm situation, was read before the Texas Legislature May 27 by the Secretary's representative, Mr. C. L. Marlatt, chairman of the Federal Horticultural Board, United States Department of Agriculture:

MY DEAR GOVERNOR:

"It is with the keenest regret that I am compelled to advise you that I will not be able to fulfill my promise to address the special session of the Legislature of Texas on May 27 on the subject of the pink bollworm. It has been necessary for me to submit to a minor surgical operation and, although I have substantially recovered, my physician advises me that the long trip which a visit to Texas entails is not to be considered.

"I need not assure you that I have been looking forward to this trip, because I have been anxious to emphasize directly to the people of Texas my keen interest in the full execution of the program that has already been agreed upon between this department and yourself, and other representatives from Texas, as well as representatives from the State of Louisiana, looking to the extermination of the pink bollworm in these States. The need of control work to safeguard the future cotton interests of Texas and of the Nation can not be overestimated, and I sincerely hope that my inability to give expression in person to the vital necessity of carrying out this program will not in any wise affect its prompt development and effective execution. In lieu of the presentation of the matter in person which I had confidently expected to have the pleasure and privilege of making, I am submitting in this letter a statement which I hope will be of equal use in the support of the movement.

Review of Pink Bollworm Work.

"I may take it for granted that the authorities of Texas and the members of the legislature are familiar with the history of the entrance of the pink bollworm into Mexico, of its invasion of limited areas in Texas, and of the activities of the Federal Government, through the United States Department of Agriculture in cooperation with the authorities of your State, to control and exterminate this new pest. A review of this work, together with a description of the present status of the pink bollworm in Texas and the spread of the insect into Louisiana, was given in a statement which I issued to the press on April 6 in connection with the hearings conducted by the Department of Agriculture in Washington preliminary to a possible Federal quarantine. In this statement, it was pointed out that, during the four years that the pink bollworm problem has been before the State of Texas, there has been no halting on the part of the Federal Government, either in its appropriations or its activities, to free Texas and to safeguard the United States from this new menace to the cotton crop. It was indicated that these appropriations have already totaled $1,400,000, and that an additional item of nearly $600,000 was then under consideration in connection with the bill making appropriations for the fiscal year beginning July 1 next. It was also stated that the work gave great promise of ultimate success in exterminating the pest and of freeing the cotton crop of this country from the enormous losses which its establishment and general distribution would entail. The energetic action of the State of Louisiana was described and it was stated that the one important drawback to success at the time was the delay of Texas in the establishment of noncotton zones for the infested areas in that State—a delay which has already resulted in the planting of a considerable portion of these areas to cotton.

Drastic Action Necessary.

"The strongest emphasis was placed on the fact that the extermination of the insect in Texas and Louisiana is absolutely contingent on the prohibition of the growth of cotton in the infested areas, and that the growth of cotton under restrictions in the case of areas actually infested, or the adoption of other methods of control, would simply mean the perhaps slower, but no less certain, ultimate spread of the pest. It was emphasized also that extermination is possible only under present conditions—in other words, when the infestation is just beginning and when the insect is scanty in numbers and limited in distribution—and that any postponement or limitation of the effort at this time would mean practically the loss altogether of the opportunity of extermination and an acceptance of the ultimate spread of the pest throughout the South. Furthermore, it was strongly indicated that success in the eradication effort necessarily requires the complete cooperation of the States involved, and that, if the effort should fail through any halting in the work or any limitation on the methods which alone can bring success, the responsibility therefor will rest upon the persons or communities concerned.

"The department was advised, and it was so stated, that the interests in Texas related to cotton production and utilization are, for the most part, strongly in favor of the program of extermination and of provision by the State for such compensation as may be just to the planters in the districts which will be directly affected by the prohibition of the growth of cotton. It was also advised that the normal production of cotton in these districts represents only about 1 per cent of the total production of the State, and that, on account of unfavorable climatic conditions, a profitable crop is secured only once in two or three years.

State Reimbursement to Farmers.

"This department recognized that opposition to the proposed prohibition on the part of those affected was natural and, furthermore, that it had been intensified, and in part justified, by the fact that, whereas the Texas law provides for compensation for crops destroyed in the control operations, the State has made no definite appropriation for that purpose and no reimbursement has been made for such losses. In view of this situation I strongly urged prompt action by the State to make provision for the reimbursement of those farmers whose sacrifices, as already indicated, are for the general welfare of the State and of the whole cotton industry.

"As a result of the hearing conducted in Washington on April 6 and 7 by the Federal Horticultural Board of this department, a program of Federal and State quarantine and restrictive action was drawn up and agreed to, as already indicated, by this department and by yourself and other representatives of Texas, as well as by representatives of Louisiana. This program provides for the establishment and enforcement by the States concerned of both noncotton and regulated zones, and involves such amendments to existing State legislation as may be necessary to carry out the program, including the making of specific appropriations of State moneys for the reimbursement of planters in the noncotton zones for the losses which they may sustain as a result of the prohibition of the growth of cotton. The convening of the legislature into extraordinary session at this time is, I understand, for the purpose of taking such action.

"Under this general plan, and conditioned upon the necessary action being taken by the States concerned, it was deemed sufficient to limit the effect of the Federal quarantine to the noncotton and regulated zones jointly determined upon

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COUNTRYWIDE LAND BOOM HIT HIGHEST POINT IN IOWA FARMS

(*Continued from page 4.*)

$3,327,084, or 47 per cent, was received by people living in towns and cities, while $3,711,262 was received by people living in the country. These increments are based on the price at the time the farm was bought, no matter how long ago. If the cases of farms purchased and resold during the boom alone are considered, nearly 70 per cent of the increase was received by persons dwelling in towns and cities.

It appears that farmers were more active as buyers than as sellers, since they constitute 65 per cent of the buying class, as reported, and but 56 per cent of the selling class. About 15 per cent of the sellers, however, were retired farmers. Real estate men constituted 6.9 per cent of the buyers and 11.5 per cent of the sellers.

Farmers Among the Buyers.

Statistics with reference to occupations of buyers and sellers and the intentions and motives governing purchases and sales indicate that the boom resulted in an increase in the proportion of farmers owning the farms they operate and a corresponding decrease in the proportion of farms owned by nonagricultural classes and rented to tenants.

However, the immediately beneficial result is not of great significance, because only about 10 per cent of Iowa farms were sold during the boom. On the other hand, this small percentage of change in ownership may be considered fortunate in that a comparatively small proportion of the present farmers of Iowa had assumed the heavy financial handicap involved in the purchase at the excessively high level of value resulting from the boom. Probably not more than 5 per cent of the farms of Iowa were acquired by actual farmers at boom prices. The remaining 95 per cent of the farmers have marked up the prices of their farms, and in case of necessity can mark them down again.

In the opinion of department specialists there were enough buyers at narrow margins of cash and at substantial rates of interest to cause considerable trouble if fundamental conditions should become unfavorable to agriculture in the near future. Out of a total of 927 sales, 839 involved one or more mortgages, averaging 64 per cent of the sale price. Out of 830 first mortgages, 141 were for 75 per cent or more of the sale price, and 536 for 50 per cent or more. The greater part of the mortgages are for 5 or 5½ per cent, with a considerable number at 6 per cent.

A supplemental inquiry into farm incomes in two districts in Iowa developed the fact that up to 1918 the rise in land values in that State tended to lag behind the increase in farm incomes, which helped to create a situation favorable for the sudden and rapid advance in land values that came during the following year. In the Tama district, where good crop yields occurred, 209 farms made an average farm income of $4,569 in 1918, as against $2,607 for 965 farms in the same district in 1913, while in the Warren district, in spite of an unusually poor corn crop, 183 farms yielded an average farm income of $2,269 in 1918, as against $1,454 for 852 farms in the same district in 1915.

After charging 5 per cent on farm capital, the average return remaining to pay for the operators' labor and risk of investment averaged nearly five times as much in Tama district in 1918 as in 1913, while in Warren district the average farm labor income of 1918 was about twice that of 1915. Consequently, the return for operators' labor was relatively greater than before the war period, even allowing for the change in the purchasing power of money.

However, if the charge for capital be made for the capitalization of 1919, following the increase in land values of the boom, the condition is reversed. Farmers made smaller labor incomes measured in dollars, and with no allowance for the decline in the purchasing power of the dollar, than in 1913 and 1915, respectively.

Fewer Farmers Make Return.

Moreover, the percentage of farmers failing to make any return for operators' labor and risk is greatly increased when the calculation is made by charging 5 per cent on capitalization following the boom. Whereas, on the basis of land values in 1918, in Tama district, one-fifth of the owners and one-ninth of the tenants failed to make any return for operators' labor and risk, on the basis of 919, 49 per cent of the owners and nearly two-fifths of the tenants fell short of making such a return.

The consequences are further intensified when the allowance is made at 5½ per cent instead of 5 per cent. Yet a large proportion of the mortgages and a large part of the personal indebtedness are contracted at an interest rate of 5½ per cent or more.

It has long been true in Iowa, as well as in certain other prosperous farming regions of the United States, that land values are so high that cash rents received by landlords yield a percentage of return on the investment considerably smaller than the current return on first-mortgage indebtedness. A study of rents in 48 Iowa counties, for 1918, showed that net cash rents averaged 2.71 per cent of the value of the land in March, 1918, and 2.35 per cent of the value in March, 1919.

On account of this condition tenants can earn a much larger labor income after paying rent than farmers can earn who borrow a considerable proportion of their capital at 5 per cent, or more, or who forego other forms of investment in order to purchase the farms they operate. Thus in the Tama district the average labor income of tenants, after paying rent, was nearly three times as large as the average labor income of owners operating their farms, calculated by deducting 5 per cent on the capitalization of the farm. Stated in another way, tenants were able to earn a net return on capital invested of 31.98 per cent, as compared with only 4.99 for owners on the basis of land values in 1918.

Current Prices Not Justified.

The fact that current prices of land are not justified by the actual earning power of the soil is emphasized by the relative financial disadvantage of owning, as compared with selling out at present high valuation, operating as a tenant, and investing surplus capital in other ways. Of course, if all farmers in the region were to do this a sharp reaction would be precipitated, but under present conditions the owner with the average farm capitalization of nearly $90,000 could make nearly twice as much by operating as a tenant and investing his remaining capital in 5 per cent bonds, than he can by owning the farm he operates. The department points out that it does not follow, however, that it would be desirable for all farmers to do this, since in certain cases, even at current high prices, the many advantages of farm ownership might outweigh the high return on small investment made by the tenant.

It is pointed out that at current prices for land it is not only financially unprofitable for the tenant to become an owner, but that for the great majority of tenants it is practically impossible. The average net worth of tenants, as determined by this study, is only about 12 per cent of the value of the average farm capital. Even if the tenant can borrow the remainder of the capital necessary to become an owner, he could expect to earn, under the favorable conditions with respect to crops and prices prevailing in 1918, less than 3½ per cent on the total capital borrowed. Falling prices for farm products or unfavorable crops would make the prospect even less satisfactory.

A logical inference from these facts is that an improvement in credit arrangements, frequently suggested as a remedy for the increase of tenancy, may not be regarded as a fundamental solution so long as land values are so high that it is both unprofitable and impossible for the majority of tenants to acquire ownership.

(*Continued on page 6.*)

Department's Canvass of Country Shows Relative Standing of Live-Stock Breeds

Here are the relative standings, in percentage and numbers, of live-stock breeds in the United States as shown by an investigation recently made by the Bureau of Crop Estimates, United States Department of Agriculture. Shorthorn or Durham cattle, Duroc-Jersey hogs, and Merino sheep lead all other breeds in numbers. This information is brought out by replies received from an inquiry sent to 14,000 special live-stock reporters of the bureau. The inquiry called for the following information: "Letting 100 represent the total number in your locality, what proportion of the total belongs to the breeds named? Grades and scrubs should be included in the breed in which the type predominates."

From the percentages thus obtained the figures representing the number of each breed have been determined from the January 1 estimates of live stock on farms. The numbers and percentages for the United States are as follows: For cattle, Shorthorn (Durham), the number is 15,429,000, or 22.6 per cent of the whole number of cattle; Herefords, 14,302,000, or 21 per cent; Holstein, 11,069,000, or 16.2 per cent; Jersey, 9,554,000, or 14 per cent; Aberdeen Angus, 2,479,000, or 3.6 per cent; Guernsey, 1,993,000, or 2.9 per cent; Red Polled, 1,772,000, or 2.6 per cent; Polled Durham, 1,033,000, or 1.5 per cent; Galloway 534,000, or 0.8 per cent; Ayrshire, 412,000, or 0.6 per cent; Brown Swiss, 170,000, or 0.3 per cent; Devons, 175,000, or 0.3 per cent; Dutch Belted, 157,000, or 0.2 per cent; others, 2,107,000, or 3.1 per cent; nondescript (unclassified), 7,044,000, or 10.3 per cent; total, 68,232,000, or 100 per cent.

Beef Breeds Predominate.

It will be observed that the beef breeds preponderated over the milk breeds. Holsteins are most numerous of the milk breeds; in the Northern States they are two to three times as numerous as the Jerseys; in the Southern States, however, the Jersey is three to five times as numerous as the Holstein; in other words, the Holstein decreases in relative numbers from north to south, and the Jersey increases relatively in going from north to south.

The relative rank of swine breeds is as follows: Duroc-Jersey, 24,914,000, or 34.2 per cent of all swine; Poland China, 20,308,000, or 27.9 per cent; Chester White, 7,788,000, or 10.7 per cent; Berkshire, 6,719,000, or 9.2 per cent; Razorbacks, 3,061,000, or 4.2 per cent; Hampshire, 2,834,000, or 3.9 per cent; Tamworth, 508,000, or 0.7 per cent; Yorkshire, 471,000, or 0.6 per cent; Cheshire, 248,000, or 0.3 per cent; others, 1,997,000, or 2.7 per cent; nondescripts, 4,061,000, or 5.6 per cent; total, 72,909,000, or 100 per cent.

Among the sheep the rank is as follows: Merino, 12,364,000, or 25.4 per cent of all sheep; Shropshire, 11,253,000, or 23.2 per cent; Rambouillet, 6,455,000, or 13.3 per cent; Cotswold, 3,504,000, or 7.2 per cent; Hampshire, 2,968,000, or 6.1 per cent; Southdown, 2,984,000, or 6.1 per cent; Lincoln, 1,862,000, or 3.8 per cent; Oxforddown, 935,000, or 1.9 per cent; Dorset, 357,000, or 0.7 per cent; Cheviot, 140,000, or 0.3 per cent; Leicester, 135,000, or 0.3 per cent; Tunis, 37,000, or 0.1 per cent; others, 1,681,000, or 3.5 per cent; nondescript, 3,941,000, or 8.1 per cent; total, 48,615,000, or 100 per cent. The Merino predominate in the western range States, but the Shropshire largely predominate on the farms in the Eastern States.

The results of the investigation by geographic divisions as well as the totals for the entire country are given in the accompanying table. The last column gives the actual number of live stock in the different breeds in the United States. The remaining columns are in terms of percentages.

NUMBER AND PERCENTAGES OF ANIMALS OF VARIOUS BREEDS IN UNITED STATES.

Animals.	United States.	North Atlantic States.	North Central, East.	North Central, West.	South Atlantic.	South Central.	Far West.	Total number in United States.
HOGS.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	
Berkshire	9.2	28.3	6.4	3.5	18.2	10.6	19.1	6,719,000
Cheshire	.3	2.1	.3	.3	.2	.2	.3	248,000
Chester White	10.7	35.0	15.3	11.7	3.7	3.1	7.6	7,788,000
Duroc Jersey	34.2	8.4	33.3	40.9	27.2	34.4	31.3	24,914,000
Hampshire	3.9	.8	3.3	4.4	6.8	2.8	2.2	2,834,000
Yorkshire	.6	2.4	.8	.7	.4	.3	.3	471,000
Poland China	27.9	10.2	32.1	32.4	15.3	26.7	28.8	20,308,000
Tamworth	.7	.3	.7	.6	.9	.9	.8	508,000
Razorback	4.2	.1	.2	.3	14.4	10.3	1.4	3,061,000
Other	2.7	3.3	3.4	2.0	3.8	2.5	2.5	1,997,000
Nondescript	5.6	9.1	4.2	3.2	9.1	8.2	5.7	4,061,000
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	72,909,000
CATTLE.								
Aberdeen Angus	3.6	.3	3.6	6.9	2.9	3.1	.8	2,479,000
Ayrshire	.6	4.8	.4	.3	.3	.....	.2	412,000
Brown Swiss	.3	.4	.7	.2	.1	.....	.1	170,000
Devon	.3	.4	.1	.1	.7	.3	.4	175,000
Dutch Belted	.2	.4	.1	.1	.1	.7	.....	157,000
Galloway	.8	.1	.7	1.8	.2	.3	.3	534,000
Guernsey	2.9	8.8	6.3	1.9	3.6	.4	1.3	1,993,000
Hereford	21.0	1.7	7.8	24.2	9.1	22.5	40.9	14,302,000
Holstein	16.2	54.0	29.3	8.7	9.0	5.2	14.9	11,069,000
Jersey	14.0	14.3	15.3	4.8	29.5	23.8	8.8	9,554,000
Polled Durham	1.5	.1	1.8	1.9	.4	2.4	.9	1,033,000
Red Polled	2.6	.2	1.7	3.3	1.6	5.4	.5	1,772,000
Short Horn (Durham)	22.6	5.4	23.3	36.2	9.5	15.9	21.9	15,429,000
Other	3.1	2.2	2.1	2.3	6.8	4.9	1.8	2,107,000
Nondescript	10.3	6.9	6.8	7.3	26.2	15.0	7.2	7,044,000
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	68,232,000
SHEEP.								
Cheviot	.3	1.4	.6	.3	.9	.1	.1	140,000
Cotswold	7.2	3.6	4.4	8.0	3.1	2.9	9.5	3,504,000
Dorset	.7	3.5	1.1	.6	4.0	.4	.2	357,000
Hampshire	6.1	6.7	5.7	6.4	7.0	7.0	5.8	2,968,000
Leister	.3	1.1	.8	.3	.2	.1	.1	135,000
Lincoln	3.8	1.0	2.1	1.4	.7	1.2	6.0	1,862,000
Merino	25.4	15.8	18.8	9.9	6.0	18.1	35.0	12,364,000
Oxforddown	1.9	3.6	4.7	2.9	.9	.8	1.0	935,000
Rambouillet	13.3	1.9	3.1	6.2	1.1	15.4	19.6	6,455,000
Shropshire	23.2	32.8	41.6	48.7	28.0	15.9	12.1	11,253,000
Southdown	6.1	14.0	6.4	4.5	25.6	17.2	1.7	2,984,000
Tunis	.1	.1	.1	.1	.....	.2	.....	37,000
Other	3.5	2.3	4.5	4.6	5.0	6.9	2.1	1,681,000
Nondescript	8.1	12.2	6.1	6.1	17.5	13.8	6.8	3,941,000
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	48,615,000

COUNTRYWIDE LAND BOOM HIT HIGHEST POINT IN IOWA FARMS

(Continued from page 5.)

When conditions are such as are revealed by the present study, the solution of the evils of tenancy would appear to require methods that will limit the tendency toward the overcapitalization of farm-land values in relation to farm incomes. In part, this may be accomplished by educating farmers in alternative lines of sound investment, and in showing them the folly of sacrificing their standards of living in order to purchase land at excessive prices. In part, it may be necessary to employ more direct methods for the purpose of reducing that part of the demand for land which is the outgrowth of speculative motives or other motives not connected with the desire to acquire land for the purpose of utilizing it.

ASKS TOBACCO MEN TO HELP IN FOREST FIRE PREVENTION

Secretary Meredith Suggests That Smokers Be Cautioned Against Carelessness.

Suggests That Printed Appeals Urging Careful Handling of Fire Be Included in Tobacco Packages.

Because of the very serious fire hazard created by tobacco smoking in the forests, E. T. Meredith, Secretary of Agriculture, has just written to seven of the leading tobacco companies in this country asking their cooperation in enlisting smokers in a campaign against careless use of fire in all forests, both national and private. Smokers, statistics show, are annually responsible for a large number of conflagrations in timbered areas, causing immense losses. The Secretary's letter suggests that the tobacco companies can render an invaluable service in this movement by including in tobacco packages brief printed legends urging smokers to take every precaution to prevent the spread of fire from matches or burning tobacco. Action of this character, reported to have been taken by a Canadian tobacco company, is cited by Secretary Meredith.

Forest Service Leads Movement.

The letter is one feature in a movement now being carried on by the Forest Service to lessen the number of fires caused by smokers and others while working or enjoying outings in the forests, whose preservation is so essential to national prosperity.

The letter of the Secretary is as follows:

"In protecting the national forests of over 150,000,000 acres, the Department of Agriculture has to fight thousands of forest fires every summer due to carelessness. Throughout the United States we needlessly burn up every year a great deal of our forest wealth and turn productive timber into wastes, largely because the public does not sufficiently realize the importance of a sense of individual responsibility in the prevention of fire.

"Smokers cause many forest fires. Some lumber companies forbid smoking in the woods, and the extension of this rule is being strongly urged. Such measures would never have been considered necessary if smokers sufficiently recognized the danger that attends the dropping of a lighted match, a pipe coal, or an unextinguished cigarette or cigar stump.

Cigarette Spark May Cost Thousands.

"Hunters, fishermen, and woods workers of all kinds smoke in the forests, while automobilists toss a bit of fire from their cars and speed thoughtlessly on, unaware even though they have left an incipient conflagration behind them. A single glowing cigarette end may cost the Government thousands of dollars for fire fighting, to say nothing of the value of the timber destroyed, the desolation of scenic beauty, and the harm done to water flows.

"Your company can, I believe, do much to lessen these losses. Would it not be possible for you to print a fire caution on the outside of each tobacco, cigar, or cigarette container? Hundreds of thousands of people would read such warnings, and their effect would be very great. I understand that in Canada at least one important tobacco company has already taken this step.

FIRE-PREVENTION SLOGANS FOR SMOKERS.

Don't drop FIRE when you smoke in the woods, nor throw it out along the road. Keep the forests GREEN!

DANGER! Matches, pipe coals, cigar stubs, and cigarette ends start many forest fires. Help protect woods, streams, scenery.

BE CAREFUL! Don't start a fire in the woods when you begin or end your smoke! Be sure your match, cigarette, or pipe is out.

DON'T START WHAT YOU CAN'T STOP! Be careful with fire in and near the forest.

FIRE IS DANGEROUS! Be careful when you smoke in the woods.

LOOK OUT! When you smoke in the woods, don't start a forest fire.

YOUR COOPERATION with this company to keep down forest fires is asked. Break your match in two. Knock out your pipe ashes into your hand. Don't drop a burning cigarette.

FOREST FIRES cost millions a year. Don't start one.

DON'T THROW FIRE AWAY in the woods or along the road.

HELP PREVENT FIRES.

Confident of Cooperation.

"It is not enough to bring the importance of fire prevention to the attention of an individual once or twice. The warning to use caution needs to be so drilled into his consciousness that care becomes habitual and instinctive. Perhaps you could see your way clear to print on the reverse side of the packing slips inclosed in tobacco cans a fire warning, and to place the slip in the can with the fire warning up so that it would catch the eye. Coupons and packing slips in cigarette and tobacco packages and cigar boxes would afford a further opportunity for fire warnings.

"Would it not be possible, also, for you to consider putting a slogan, like one of those on the inclosed sheet, on the lithographs which you use in billboard advertising? From its novelty as well as from the evidence that it would afford of a desire to further public welfare, such advertising will perhaps appeal to you. I am confident that I may count on your interest in this subject, and your willingness to cooperate in so far as you can with those who are seeking to diminish the excessive and startling number of man-caused fires in the woods. I would much appreciate advice as to whether the suggestions made appeal to you as being practicable."

MAY PUT BAN ON IMPORTATION OF PORTO RICAN COTTON SEED

Announcement of a public hearing to be held June 29 to consider the advisability of prohibiting the importation of cotton seed and seed cotton from Porto Rico, because of the prevalence of the cotton blister mite there has been made by the Department of Agriculture. The question of restricting the importation of cotton lint from the Territory for the same reason will be considered also.

The hearing will be held at the Department of Agriculture, Washington, D. C., Room 11, Federal Horticultural Board, at 10 o'clock a. m., June 29. Any person interested in the proposed quarantine may appear and be heard either in person or by attorney.

Cotton blister mite is a dangerous insect not known to occur within the United States. Information, however, has come to the department that the insect is now present in Porto Rico. Officials are apprehensive, therefore, that it may find its way into the United States and menace the cotton crop here. Additional grounds for the quarantine exist in the fact that a cotton boll disease is also present in Porto Rico at this time which might be introduced into the United States and prove even more dangerous.

The enforcement of the proposed quarantine will make it necessary for the seed produced in the island either to be exported to foreign countries or to be milled or otherwise utilized there. It is not purposed under the quarantine to prevent the importation of ginned cotton and cottonseed cake, meal and oil from the island under proper safeguards.

The only rational treatment for common sheep scab consists in using some external application which will kill the parasites. Feeding sulphur and salt and various other preparations to sheep will not destroy the parasites and consequently will not effect a cure.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
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Edwy B. Reid, Chief

OFFICE OF INFORMATION
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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

TWO NUMBERS IN ONE

Owing to the shortage of Government stocks of paper, the Weekly News Letter for June 2 could not be issued, and it is therefore consolidated with the number of June 9 in this issue.

WAR-TIME NEEDS PROMOTE USE OF IRRIGATED LAND

Under the stress of war-time needs, the production of cereals on irrigated lands in southern Idaho—the Snake River basin—received an impetus which is stimulating the live-stock industry of that locality. Farmers who previously regarded the growing of small grain on irrigated lands as profitable only as the first crop on new land, now find greater possibilities in this form of production, and are seeking better methods of irrigation and cultivation. Much of the grain which is produced can be marketed most profitably by feeding to live stock.

The Bureau of Plant Industry, United States Department of Agriculture, in cooperation with the Idaho Agricultural Experiment Station through its substation at Aberdeen, Idaho, has made a careful study of the increasing attention given irrigated grain in this section of the country. The results, together with much valuable information concerning the various grains and the treatment of land for irrigation, are contained in a bulletin soon to be issued for general distribution.

According to the bulletin, until the outbreak of the war the increase in the production of wheat, oats, and barley in southern Idaho had been gradual, keeping pace with the extent of new land placed under irrigation. During the war the acreage of wheat was greatly increased at the expense of oats, alfalfa, clover, and other crops. A slight increase in the acreage of barley resulted from the substitution of this grain for wheat in bread making.

A full discussion of "Growing Irrigated Grain in Southern Idaho" is found in Farmers' Bulletin 1103, copies of which may be had free upon request at the Department of Agriculture, Washington, D. C.

EXTENSION OF CORN BORER QUARANTINE IN NEW YORK

The quarantine against the European corn borer covering an infested area in western New York State has been extended to include the township of Dunkirk, Chautauqua County, it is announced by the Department of Agriculture. Notice has been given that the extension of the quarantine became effective May 8. It is supplemental to the original action for checking the spread of this insect taken by the Department of Agriculture March 15 of this year under the Plant Quarantine Act.

In discussing the quarantine, officials of the Federal Horticultural Board said that the damage thus far occasioned by the insect in the western New York area had been very slight, but that there was danger of the borer spreading to other sections of the country. Small parts of New Hampshire, Massachusetts, and Pennsylvania are also under quarantine. In these areas, particularly Massachusetts, it was said, the insects are proving more destructive. No serious spread of the borer is expected, but officials are careful to see that no chances of this are given the insect.

CALVES MAKE BIGGEST GAIN ON HEAVY SKIM-MILK RATION

How much skim milk should be fed to calves daily?

Results obtained thus far at the Dairy Division experiment farm, Beltsville, Md., indicate that calves will make the greatest gains in weight when fed comparatively large quantities of skim milk daily (one-fifth of their body weight, or all they will drink), but that the most economical gains are made on smaller quantities.

In an experiment to determine the effect of feeding various quantities of skim milk, 16 calves were divided into groups of 4 calves each. These groups were balanced as nearly as possible with reference to breed and body weight at birth. One group was given a daily ration of one-seventh of the body weight, the quantity being regulated by body weights taken every 10 days. Two other groups were fed at the rate of one-sixth and one-fifth of their body weights; and the fourth group was given all the milk the calves would drink, twice a day.

Each calf received its mother's milk until it was 10 days old. The change to skim milk was then made gradually, and at the age of 15 days the calf was on an entire skim-milk ration. The experiment ran for 70 days. Weights obtained for three consecutive days, at the end of the 70-day period, were taken as the final weights. The average results from each group are given in tabular form:

Rate of feeding.	Daily gain.	Milk per day.	Milk per pound of gain.
	Lbs.	*Lbs.*	*Lbs.*
Group 1 (one-seventh of body weight)	0.95	13.52	14.4
Group 2 (one-sixth of body weight)	1.09	16.99	15.6
Group 3 (one-fifth of body weight)	1.26	20.96	17.0
Group 4 (all they would drink)	1.48	24.22	16.6

The groups were well balanced as regards weight and thrift of the calves.

The gains increased with the quantity of skim milk fed, the calves which received all they would drink making gains at least 50 per cent larger larger than those receiving milk at the rate of one-seventh of their body weight. To do this they drank about 80 per cent more milk. As a consequence the skim milk required for one pound of gain was greater with the heavily fed calves.

No bad results from heavy feeding were noticed, although all of the calves in group 4, with one exception, drank, at times, more than 40 pounds of skim milk a day. This leads us to believe that overfeeding is not in itself a common cause of scours.

PROGRESS IN SHEEP-SCAB ERADICATION.

Common scab was formerly the greatest drawback to the sheep industry of the United States, but during the past decade great progress has been made in its eradication. The system of grazing sheep on the open ranges of the western part of the United States was such that the flockmasters had great difficulty in keeping the flocks free from scab. The sheep were very frequently exposed to the disease by infectious ranges and trails, "picking up strays" from infected flocks, and in many other ways. It became desirable for the Department of Agriculture to extend aid to the industry by controlling the interstate movement of sheep to prevent the carrying of the infection from one State to another.

Pulaski County, Virginia, Leads Whole Country in "Better Sires" Movement

With 312 of its live-stock owners enrolled in the "Better Sires—Better Stock" movement, Pulaski County, Va., leads all other counties in the United States in the number of breeders cooperating with the United States Department of Agriculture for the banishment of inferior sires. Henceforth all the live stock owned by the persons enrolled will be bred to purebred sires only, and those sires will also be of good quality. Although the herds and flocks of Pulaski County, Va., are not so extensive in size as those in some other parts of the country, the quantity of stock owned by the persons enrolled amounts to noteworthy totals. Following is a summary of the breeding stock in the county listed with the department:

"Better Sires—Better Stock" Record for Pulaski County, Va., Oct. 1, 9119–May 1, 1920.

Kinds of stock.	Males (all purebred).	Females.			
		Purebred.	Grade.	Crossbred.	Scrub.
Cattle	95	230	876	137	5
Horses	26	69	185	21	3
Asses	.....	3	4	.....	.....
Swine	128	259	492	117	2
Sheep	178	366	3,468	227	24
Total animals	427	927	5,025	502	34
Fowls	601	3,655	6,553	1,194	.....
Other poultry	140	405	355	19	.....
Total poultry	741	4,060	6,908	1,213	.....
Total animals and poultry	1,168	4,987	11,933	1,715	34

Total quantity of breeding stock listed..... 19,837

There is a notable absence of scrubs in the reports—only 34 out of a total of 19,837 animals and poultry, the data in all cases being approved by the county agent. These scrubs, of course, are all females and are composed of 24 sheep, 5 cattle, 3 horses, and 2 swine. Not a single feathered scrub was reported. The 34 scrubs are distributed among eight owners, so that the other 254 owners have none of these nondescripts.

Purebreds Will Improve Stock.

All males are purebred and all the female stock will be improved by the use of these males. A few years' breeding should result in a great deal of valuable purebred young stock and a still greater quantity of high-grade animals developed from present foundation herds. Commenting on interest in live-stock improvement, County Agent J. H. Meek has furnished the Department of Agriculture with the following outline of stock-raising progress in Pulaski County:

"Pulaski County, in southwestern Virginia, a noted live-stock section of the East, has long been considered a county in which much good live stock was finished, and several of the most noted pioneer breeders of the East lived here. During the latter part of the nineteenth century much good stock could be found in Pulaski County. But there was little encouragement to these breeders by organizations, the general public, or Government supervision and cooperation; so, as these men grew older and their children, not having encouragement or assistance, in many cases left the farm and went to the town or city, interest in good and better stock seems to have decreased considerably. Nevertheless, during this period of several decades, when interest in horses was very good, indeed, though there was little encouragement to a breeder of purebred cattle, several bright, foresighted, and energetic young men in Pulaski County began breeding purebred cattle and have made a real success of it.

"About three years ago demonstration work was started in Pulaski County, and although there were some good cattle, there were many grade and inferior sires in use. The first thing that was done by the county agent was to get a purebred live-stock association organized and started. A number of purebred sires were brought into the county and some females. Since that time opportunities have been carefully watched to put purebred sires where each neighborhood would have access to them, and a number have been placed in this way. For three years the county agent, realizing that live stock was the main income of the farmers of the county and that it was not as good as it should be, has tried to take advantage of every opportunity to say or do something that would influence the improvement of live stock.

Majority Use Purebred Sires.

"In the early fall of 1919 the United States Department of Agriculture announced the intention of having a 'Better Sires—Better Stock' crusade which just fitted in with what was being done. Meetings have been held, articles written, circular letters sent out, and individuals visited to promote the cause.

"Many of the most substantial and successful farmers were enrolled in the 'Better Sires—Better Stock' campaign soon after it was announced, and others have been enrolled at various meetings, or wherever they could be visited. All of these were enthused with the work and many began to work and talk for the promotion of the campaign. The consequences are that men in Pulaski County who have not agreed to use only purebred sires seem to be ashamed of themselves, because they realize that they are going to be in the minority."

BUREAU OF MARKETS OPENS SIX NEW FIELD STATIONS

In furtherance of its policy to be of all possible assistance to growers and shippers of seasonable fruits and vegetables, the Bureau of Markets of the United States Department of Agriculture on June 1 will have six additional field stations in operation for the gathering and dissemination of marketing information on potatoes, tomatoes, cantaloupes, watermelons, and peaches during the shipping season.

These stations will be located at Brawley, Calif.; Crystal Springs, Miss.; Ocala, Fla.; Washington, N. C.; Charleston, S. C.; and Fort Valley, Ga.

Market information relative to f. o. b. prices and market conditions, quality and conditions of the stock moving to market, and other necessary facts on marketing seasonable fruits and vegetables will be collected and distributed at these points. Growers, shippers, and all others interested may secure this information upon application at these new field stations or at the permanent branch offices of the Bureau of Markets.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended May 22, 1920:

Selecting a Farm. Farmers' Bulletin 1088.

The Alfalfa Caterpillar. Farmers' Bulletin 1094.

The Stable Fly: How to Prevent Its Annoyance and Its Losses to Live Stock. Farmers' Bulletin 1097.

Carpet Grass. Farmers' Bulletin 1130.

Kudzu. Department Circular 89.

The Jack Bean. Department Circular 92.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention, make your request definite by specifying the distinct class and number of publication desired, for example: Farmers' Bulletin No. 1088; Department Bulletin 114; Department Circular 92.

CAN WIPE OUT COTTON PEST, SECRETARY MEREDITH WRITES

(Continued from page 4.)

for these two States. The Federal quarantine in such case would be merely supplemental to the State quarantines, and for the purpose of giving Federal authority and aid to the enforcement of the latter, more particularly with respect to interstate movement of the products concerned. The execution of this plan would mean that no Federal restrictions whatever need be placed on the interstate movement of cotton and cotton products out of Texas and Louisiana other than as to the limited quarantined districts. The representatives of other Southern States which had already issued quarantines against Texas and Louisiana, or were considering the issuance of such quarantines, also agreed to reconsider the matter or to limit their quarantine action so that it would correspond with the Federal and State action described, thus relieving Texas from restrictions on the movement of and commerce in its principal crop on the part of surrounding States which were being placed independently of Federal action, and over which the Federal authorities had no control.

Should Wage Fight Earnestly.

"The full enforcement by the State and Federal authorities of all features of the program, it was believed, would result in the extermination of the pink bollworm in the United States and make it possible to relieve the quarantined districts in Texas and Louisiana of restrictions for the most part, if not altogether, within two or three years.

"It does not seem possible that any fair-minded person, in view of what is now known with respect to this new pest of cotton, will consider that the program outlined is not well worth carrying out at whatever sacrifice and cost. The Federal Department of Agriculture and the States of Texas and Louisiana would, it seems to me, certainly be considered negligent of their plain duties in this matter if they omitted, at this critical stage, any steps which are recognized as essential to the success of the effort to exterminate the pest. The fight should now be earnestly waged without the abatement of any factor believed necessary to insure ultimate victory. Success can not be guaranteed. The pink bollworm may win out, but the conditions are now such that there is very strong reason to expect that the outcome will be successful if the program outlined is fully and energetically supported by all interests concerned, including the planters of the districts where the growth of cotton must necessarily be prohibited or regulated.

Opposition Dangerous to State and Nation.

"I regret to learn that, in spite of these representations and of the detailed plan agreed upon as a result of the hearing in Washington, there is still an active effort in some sections of the State to prevent the action suggested on the part of Texas. Some of this opposition has for its justification the failure of the State to provide for the reimbursement of losses caused to planters by the destruction of a portion of the crop of 1919—reimbursements which, I am advised, were specifically authorized in the pink bollworm act of that year. Those concerned in this opposition, however, have undertaken a propaganda to minimize or deny the menace of the pink bollworm to Texas and to the whole South, declaring sometimes that the insect does not occur or is not a pest in the district, or that, if it does occur, it is and will be a negligible factor in the cotton production of the country. In some instances, this campaign has gone to the extent of declaring that the insect has been exploited only by interested experts of this department and of the State to serve selfish personal ends and that its alleged importance has no substantial basis in fact.

"The contention that the pink bollworm is an old and well-known enemy of cotton, so far as it is based on an honest belief on the part of planters, is due to the confusion of this insect with the old-time bollworm of cotton, known also as the corn earworm, and perhaps with a number of other native worms, which occasionally bore into the bolls of cotton. That the pink bollworm is an entirely different insect and actually exists in the district in question is based on adequate and conclusive determination by the experts of this department and of the Division of Insects of the National Museum at Washington.

"The argument that because the pink bollworm has so far caused no material loss to the cotton crop of Texas it must, therefore, be a negligible pest, overlooks entirely the fact that this lack of damage is due, first, to the recent introduction of the pest and, second, to the intensive control work, begun promptly after its discovery, on the part of the Federal Government in cooperation with the State authorities of Texas—control which has involved the expenditure, as already noted, of nearly a million and a half dollars. Extermination is now possible only because of the limited foothold that the pest has gained on account of its recent introduction and the substantial control which this large expenditure has brought about. If this control is now stopped or materially lessened, the insect will surely and quickly become more widespread and ultimately will cause in this country damage as great as, or perhaps greater than, it is now causing in the other important cotton-producing countries of the world.

"Those who advance this argument refuse to accept any evidence based on experience with the insect in other countries as to the menace of the pest, and it, therefore, seems impossible to convince them of the truth in the matter. The opposition apparently is centered in the main district in which it becomes necessary, under the program agreed upon, to prohibit the growth of cotton. In relation to the great cotton production of the State of Texas it is significant, as already noted, that this district produces approximately only 1 per cent of the cotton crop of the State. I can not believe that the people of this district will be willing, when they thoroughly understand the situation, to assume responsibility for jeopardizing the cotton interests of Texas, to say nothing of the cotton interests of a dozen other States and the related interests and industries which are Nation wide.

Is Bollworm Real Menace?

"In answer to the question, 'Is the pink bollworm a real menace to the cotton crop of this country?' it may be pointed out that there is no disagreement on the part of cotton experts and others connected with cotton culture the world over as to the importance and seriousness of this new enemy of cotton—an enemy which has spread during the last 10 or 15 years to practically every cotton-producing country in the world. The menace of this pest to us, therefore, is clearly indicated by the official records of other countries. To more fully illustrate this point, I am quoting a review of these records recently issued by the Department of Agriculture through its news service:

"'The most accurate estimate of losses occasioned by the pink bollworm are those issued in official reports from Egypt and Brazil. A comprehensive report of such losses was issued by the Egyptian Department of Agriculture in 1917. This report, based on the examination of over 100,000 bolls, indicates a percentage of infestation of green bolls of 10 per cent in July, 75 per cent in September, and a maximum of 89 per cent in October. It indicates further that from 25 to 50 per cent of the bolls in August and September, which would have produced a considerable element of the crop, were attacked and either destroyed or rendered practically valueless. These figures also illustrate the rapid increase of the insect as the season

advances in a region where it has had time to become fully established.

Egyptian Losses Reach 20 Per Cent.

"'The latest data on losses in Egypt are those given in the Bulletin of Entomological Research for July, 1919, published by the Imperial Bureau of Entomology of Great Britain. It is exhaustive and fully confirms the earlier estimate of losses, placing it at from 11 to 16 per cent of the first picking, from 17 to 20 per cent of the second picking. The method of control adopted eliminates the third picking. This method of control adopted by the Egyptian Department of Agriculture is a very strenuous program and one much too expensive for general adoption in this country with its greater labor costs. In spite of such control, involving the destruction of all of the standing crop fairly early in the autumn and the disinfection and supervision of all seed for planting, the Government estimates indicate that there is still a loss due to this insect of approximately 20 per cent of the crop.

"'The minister of agriculture in Brazil has published a summary of results based on a careful estimate of damage to the cotton crop caused by the pink bollworm in the principal cotton-producing States of that Republic. The money value of these losses, which run from 30 per cent to 66⅔ per cent of the crop, is indicated in the following table:

Brazilian State.	American currency.
Maranhac	$750, 000
Piauhy	500, 000
Ceara	10, 000, 000
Rio Grande de Norte	2, 500, 000
Parahyba	5, 925, 000
Pernambuco	5, 750, 000
Alagoas	1, 575, 000

"'A bulletin recently issued by the National Society of Agriculture of Brazil contains a note to the effect that the losses from the pink bollworm, presumably to the crop of 1918, amounted to 80 per cent of the crop in the States of Rio Grande de Norte and Parahyba.

30 Per Cent Loss in Laguna.

"'The injury caused by the pink bollworm in the Laguna, the principal cotton-producing area in Mexico, was investigated in 1917 by a joint commission of Mexican and American experts. The estimated loss for that year was not less than 30 per cent of the crop, involving substantially a total loss of the second crop which, in that district, is a very important element of the total annual yield. Individual fields indicated losses of upwards of 50 per cent of the crop. The character and percentage of losses in this district have also been studied by experts of this department in connection with the crops of 1918 and 1919. These studies have indicated similar losses for these two years involving as before all of the second or top crop. As indicating the amount of infestation toward the end of the season of 1919, 100 mature and unopened bolls were picked at random in an average field, and an examination showed that every boll was infested and some 900 pink bollworm larvæ were taken from them.

"'The rate of increase of this insect in the Laguna during the season of 1919 was carefully studied. Cotton bolls were collected at random each month from July to November on some seven ranches. The average number of pink bollworms found per 100 bolls was approximately 16 in August. Prior to that time the attacks of the insects had been largely confined to the bloom and squares. In September an average of 156 worms were found to 100 bolls, nearly 700 in October, and 724 in November. In other words, there was an average of more than 1½ worms to the boll in September at the height of the picking season, and some 7 or more to the boll in October and November!

"'In the Hawaiian Islands a very promising cotton industry has been practically annihilated by this insect.

"'Accurate figures as to losses in China have not been received, but that the insect is on the increase there has been indicated by recent studies of the cotton crop of China by agricultural explorers of this department.

United States Would Fare No Better.

"'There is no reason to anticipate that the United States would be any better off than any of these other countries should this insect become widespread and fully established here. On the other hand, cotton growers in this country would have the additional disadvantage of the cotton-boll weevil which does not occur in any of the competing cotton-producing countries of the world other than Mexico.

"'The possibility of damage from this insect in this country is further indicated by the similarity of climate obtaining in the Laguna and in the central and northern ranges of cotton culture in China to that of our Southern States. This possibility is emphasized also by the actual abundance which this pest had reached in the worst infested fields in southeastern Texas in 1917, and in the worst infested fields in Cameron Parish in 1919—an abundance which had by no means reached its maximum but was yet sufficient to have occasioned a considerable percentage of loss to the crop. For example, in the worst attacked fields referred to in 1917 and 1919, approximately 75 per cent of the late and immature bolls were infested.'

"I have already indicated the existing favorable conditions for eradication of the pink bollworm and the necessity of taking immediate advantage of these conditions. The control work which has been done during the last three years in Texas, as already pointed out, strongly supports the belief that extermination of the pest is now possible. At Hearne, for instance, where the first infestation was discovered in 1917, a noncotton zone, which has been maintained over two seasons in connection with the cleaning up of the fields, has apparently stamped out the pest. The experience in the Trinity Bay section demonstrates that the thoroughgoing clean-up operations in the winter of 1917–18 and the noncotton zone of 1918 very greatly reduced the infestation, and it is fair to assume from this result and from the experience at Hearne that, if the noncotton zone had been maintained, the pest now would have been substantially exterminated also over this much larger district.

The Lesson of the Boll Weevil.

"In this connection, the history of the entry and spread of the boll weevil is instructive and significant. At the time when this insect was first discovered in a very limited area in Texas, the United States Department of Agriculture urged the State to take radical measures to prevent its advance and to exterminate it. In a letter to Gov. Culberson of January 28, 1895, the then Assistant Secretary of Agriculture, the Hon. Charles W. Dabney, jr., called attention to the recent invasion of a new cotton pest, the cotton boll weevil, into a few counties in southeastern Texas, and pointed out that this insect was in these counties causing enormous losses, and unless checked would prove perhaps the most serious drawback to cotton culture which this country had yet encountered. He urged stringent legislation giving the State authorities power to immediately stamp out and eradicate this pest, and promised the active cooperation of the Department of Agriculture. He suggested that an act should be immediately passed by the legislature which would permit the establishment of noncotton zones along the Rio Grande River to prevent further entry from Mexico, and a provision for a commission with power to investigate, suppress, and eradicate the insect in Texas, including the power to destroy crops in which the insect should be discovered, and to take such other means as might be necessary to effect the extermination of the insect. This letter was followed up by correspondence which continued during the next two years. I understand that this advice was not

taken, largely because the authorities failed to be impressed with the seriousness of the menace partly on the assumption that the weevil, coming up from tropical Mexico, would not advance very far, or would not survive in the more temperate climate of our Southern States; in other words, employing much the same argument which is now used in the case of the pink bollworm. The fallacy of this point of view is now indicated by the spread and establishment of the boll weevil throughout most of the cotton area of the United States, and the annual losses which it occasions, amounting to many millions of dollars. The pink bollworm is now in the same situation that the boll weevil was in some 25 years ago. The argument that it is not a menace and will never cause great losses in this country has even less foundation than that advanced in connection with the boll weevil at the time of the entry of the latter into southern Texas. The lesson of the boll weevil should not be lost to Texas and this country. Failure to profit by that lesson would surely bring upon the cotton industry of this Nation a calamity which could not be measured.

The Immediate Needs.

"The matter of greatest urgency just now is the declaration of noncotton zones for the infested areas in Texas, and the plowing up of fields already planted in such areas. In connection with this action, I sincerely hope that the legislature will, as promptly as possible, make such amendments to the Pink Bollworm Act of 1919 as may be necessary to carry out the full program of extermination, including provision for the reasonable reimbursement by the State of the planters concerned for their losses.

"Perhaps I should add, as I said to you when you were here, that if Texas should fail in this emergency to carry out the program of extermination and adopt in lieu thereof some half-way course which would practically amount to giving up the fight and leaving ample opportunity for the spread of the insect in Texas and to other States, the Department of Agriculture, realizing its obligations to the other cotton-growing States and to the Nation as a whole, feels that it would be remiss in its duty if it failed to do everything that is possible, within the limits of its powers and authority, to prevent the spread of the pest from Texas. It should be borne in mind also that the quarantine action that already has been taken by several States and that is under consideration by other States, the modification or abandonment of which I understand is contingent upon the action taken by Texas to carry out the program outlined, will undoubtedly be put in full force by these States with respect to Texas, and this would result, in effect, in a country-wide quarantine of Texas, entirely independent of any Federal action. The quarantine action taken or proposed by these various States was an entirely voluntary matter. It was determined upon by an interstate convention, without consultation with this department, and was based on the responsibility which the officials of these States felt for the protection of their own cotton industry.

Depends Upon States' Action.

"In conclusion, I can do no better, perhaps, than to repeat substantially what I stated on the 6th of April with respect to the responsibility of Texas and Louisiana for the future of the pink bollworm situation, namely, that the success of the work of extermination which Congress has so liberally supported is contingent upon the action of these States. Louisiana has undertaken to do what ought to be done under the circumstances. It now remains for Texas to determine whether this cotton pest shall be given the opportunity to overrun the entire State, and ultimately the whole South, or whether the campaign of eradication shall go on efficiently with the promise of success which is now so encouraging. This responsibility can not be shifted. The situation has become much more serious on account of the failure of Texas to act promptly under the authority already granted by the legislature in the act of 1919, but it is not too late to retrieve some or most of the damage which this failure has occasioned.

"I have attempted to place this matter before you and before the Legislature and the people of Texas in as clear and forceful a manner as possible, with the sole idea of presenting the fully matured judgment of the department regarding the situation. I sincerely trust that the plans which have been agreed upon may be carried out in their entirety and that the Federal and States authorities, in the case of both Texas and Louisiana, may work together in perfect harmony and with the greatest energy and thoroughness in the effort to eliminate now, and we hope forever, the menace of the pink bollworm to the cotton interests of our country."

Cultivation Has No Effect on Rainfall, Weather Records for 50 Years Show

The belief that the cultivation of semi-arid lands increases the amount of rainfall in that region of the United States is discredited by records kept by the Weather Bureau of the United States Department of Agriculture. Special attention has been given by the bureau to this question and the assertion is now made by its specialties that cultivation does not cause any appreciable difference in the rainfall.

No Increase Over Great Plains.

There has been a decided increase in the area under cultivation in the Great Plains States during the past fifty years. If increasing the area of cultivation in any district increased the precipitation, the specialists point out, a steady rise in the annual rainfall of this region could be expected. Instead of a regular increase, the records show there are well-defined but comparatively short periods of increasing and decreasing rainfall, but which can not be due to cultivation.

Over the western Great Plains the average rainfall for the 25 years from 1868 to 1892, inclusive, was 19.2 inches, and from 1893 to 1917, inclusive, 18.4 inches. The average rainfall over the southern Great Plains for the 25 years from 1868 to 1892, inclusive, was 19.8 inches, and for the next 25 years only 17.8 inches. The average precipitation over the central Great Plains for the first period was 18.4 inches, and for the second 18.7 inches. Over the northern Great Plains the average fall for the first period was 19.6 inches, and for the second 19.4 inches.

Dry Years During Wet Period.

An interesting fact in connection with the precipitation records is that dry years occasionally occur during the wet period or wet years in a dry period. The opinion is expressed by some students of weather data that dry years and wet years come in groups of two or three each, but this belief is not substantiated by the records of the Weather Bureau. In other words, it is not possible to predict from past records the total precipitation for any year. A wet year may be followed by another wet one or by a very dry year, or vice versa.

Years of abundant and well-distributed rainfall encourage a western extension of the cultivated area, and when there is a succession of favorable years farm operations may be pushed so far into the semi-arid districts that in ordinary years the rainfall is entirely insufficient for crop needs, and disaster results. During these periods of unusual rainfall, the opinion frequently is expressed that the rainfall is increasing and that this increase must be due to the enlargement of the areas of cultivation. The records, however, do not support this belief.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Imported Butter Denied Entry.

Several shipments of butter offered for entry into the United States from foreign countries have been denied entry because the butter failed to come up to the requirements of the Federal food and drugs act, according to officials of the Bureau of Chemistry, United States Department of Agriculture. The imported butter has to meet the same standards and tests as the domestic product. The majority of the shipments which were refused entry contained too little butter fat and too much salt and water, but a few contained boric acid, a harmful preservative.

More butter came into the United States last year than during any other single year for the last 10 years. The quantity of butter exported from the United States was also larger than normal and more than three times as much as the imports. The total imports of butter and butter substitutes for the year 1919 amounted to 9,519,368 pounds; the exports of butter for the same period were 34,556,485 pounds.

The greater part of the butter imported into the United States now comes from Canada, but shipments come also from Denmark, Australia, Argentina, and New Zealand. Of 300 shipments of butter from Canada examined, 33, or a little more than 10 per cent of those examined, were denied entry into the United States. A few shipments from other countries also were not admitted because they were adulterated under the food and drugs act.

Shipments of imported butter are carefully inspected at the ports of entry, and only such butter is admitted, say the officials in charge of the enforcement of the food and drugs act, as meet the standard which the domestic product is required to meet.

Cotton Cooperation Successful.

Efforts made by farmers in the cooperative marketing of cotton have been very satisfactory, report cotton specialists of the Bureau of Markets, United States Department of Agriculture.

It is stated that farmers interested in cooperative organizations with which the bureau has maintained contact have uniformly expressed their gratification at the results achieved through their associations, and various statements have been made that from $2 up to $20 or $30 a bale more for their cotton has been received because of the assistance rendered by the organizations.

The Bureau of Markets in cooperation with the extension divisions in several of the cotton States is making a close study of methods of cotton marketing and giving actual demonstrations in a limited number of markets to show farmers what they can do for themselves by means of cooperative organizations. The bureau has also perfected plans for cooperative organizations for grading cotton which proved to be entirely workable, and so far as is possible with the personnel at its command the bureau will be glad to assist farmers in forming such organizations.

Peach Fungicide Saves Millions.

The efforts which peach growers of this country are making at this time of the year to forecast the size of the season's crop calls attention to the immense value of a fungicide developed by the United States Department of Agriculture with which brown rot, one of the most serious menaces to the peach industry, can be controlled. But for this simple, effective remedy the present forecasts would of necessity have to be made on an altogether different basis. The Bureau of Crop Estimates, United States Department of Agriculture, which forecasts the 1920 commercial crop at 29,240,000 bushels (based on conditions, Apr. 5), states that its reporters everywhere regard the fungicide as the big factor that prevents a decline of the peach industry similar to that from which apple growing has suffered in parts of the Middle West.

Up to a few years ago there was no satisfactory fungicide which could be sprayed on peaches during the growing season without seriously injuring the foliage. Everything which was tried to control the brown-rot fungus resulted in damage that made it prohibitive. Finally a simple mixture made by adding flour of sulphur to slacking lime was found by the department's investigators to have just the right qualities.

The peach crop of this country, according to the 1910 census, was valued at approximately $29,000,000. It is estimated that, with the increased production and increased prices resulting from control of brown rot and other fungus diseases, the present annual peach crop is worth between $50,000,000 and $60,000,000. Of this probably 15 to 20 per cent would be destroyed annually by brown rot if no control measures were used. On the other hand, between $5,000,000 and $10,000,000 is saved to the fruit grower and at the shipping points as a result of the department's discovery. Not only is the grower able to produce an increased quality of fruit but the sprayed fruit is much superior to the unsprayed, so that its value is enhanced and all concerned—growers, carriers, dealers, and consumers—benefit correspondingly.

Half Million Cattle Tested for TB.

From time to time the Bureau of Animal Industry publishes a "communique" showing conditions along the wide battle front where the allied forces of Federal and State authorities are fighting cattle tuberculosis.

The latest report indicates that since the beginning of the movement in 1917 the owners of 500,000 cattle have placed their herds under supervision.

On April 10, 1920, 25,793 herds scattered throughout the United States, with a total of 537,240 cattle, were under the cooperative supervision of the Department of Agriculture and State veterinarians. There were 2,230 accredited herds—60,237 cattle known to be free from the plague. Over 115,000 cattle were on the waiting list to be tested as soon as the veterinarians can work with them. Still another lot of 258,331 cattle have passed through the first stage of the test without showing any dangerous symptoms. The least optimistic estimate indicates that two-thirds of this number will conclude the test satisfactorily, and add 170,000 cattle to the accredited column.

Grades for Potatoes and Onions.

Proper distribution of farm products requires, first of all, that a common understanding exist as the basis of negotiations between producers and purchasers. The Bureau of Markets, United States Department of Agriculture, is endeavoring to bring this about by the recommendation of grades for fruits and vegetables. No. 2 potatoes should be

No. 2 potatoes throughout the United States and not, as at present, No. 2 potatoes in one section of the country and No. 1 somewhere else.

During the war period the United States Food Administration required licensed dealers to use Government potato grades. The results were so satisfactory that when the regulation was canceled the use of grades to a large extent was continued voluntarily. In fact, since that time a higher grade has been demanded to provide for produce of highest quality.

Therefore the Bureau of Markets now recommends United States grade fancy in addition to grades No. 1 and No. 2.

Grade fancy consists of sound potatoes of one variety which are mature, bright, smooth, well shaped, free from dirt or other foreign matter, frost injury, sunburn, second growth, growth cracks, cuts, scab, blight, soft rot, dry rot, and damage caused by disease, insects, or mechanical or other means. The range in size shall be stated in terms of minimum and maximum diameter or weight following the grade name, but in no case shall the diameter be less than 2 inches.

In order to allow for variations incident to commercial grading and handling, 5 per cent by weight of any lot may vary from the range in size stated, and, in addition, 3 per cent by weight of any such lot may be below the remaining requirements of this grade, but not more than one-third of such 3 per cent; that is to say, not more than 1 per cent by weight of the entire lot may have the flesh injured by soft rot.

Complete particulars regarding United States potato grades are contained in Department Circular 96, which will be mailed free upon request to the Bureau of Markets.

The Bureau of Markets also recommends grades as a standard for grading and marketing Bermuda onions in the United States. These grades are the result of an investigation by the bureau covering a period of four years. Full information regarding them is contained in Department Circular 97, which will also be sent free upon request to the Bureau of Markets.

Cooperative Marketing Successful.

During the first 100 days of 1920, 68 cooperative carloads of hogs were shipped from 22 Arkansas counties. The 6,480 hogs in the cars were owned by 700 different farmers, or an average of more than 10 shippers to each carload. Returns totaling $127,590.52 were received for these hogs at the central markets. The average cost of shipping was only 94.3 cents per hundredweight. The amount made above the highest price offered locally, where there was a local market, amounted to $260 per car, or a total saving of more than $17,500 on all shipments.

The season for shipping Arkansas cattle has not started; but in 1919 cattle shipments from that State exceeded the cooperative shipments of hogs, and indications this year are that almost all the Arkansas cattle will be shipped cooperatively.

The cooperative shipping of live stock by the method advocated by the United States Department of Agriculture has been found practicable and profitable in all sections of the country where live stock is produced in connection with general or specialized systems of farming.

French Like Our Canning Methods.

Last year France borrowed three canning specialists from the United States Department of Agriculture. This unit taught a large number of agricultural directors and professors, assembled for the purpose at the principal French agricultural college, the American methods of canning and drying. This year the Americans have been asked to continue the demonstrations and lectures. One of the unit is already there and the rest sail the last of May.

Instead of giving the instruction at one place in France this summer, short courses will be conducted in different parts of the country at the schools where those who attended the course last year have been teaching American canning methods. To facilitate the work, the French Government recently issued a bulletin which gives complete directions for canning by the American method. The material for this bulletin, which is the first of its kind to be published in French, was prepared by Frantz P. Lund, a member of the American canning unit.

When the demonstrators went across last year they took with them 20 units of canning equipment, consisting of pressure cookers, cans, both tin and glass, can sealers and other articles necessary in the work, because many of these things could not be procured in France. This year, however, this will not be necessary, as the French manufacturers, seeing how popular American canning methods were apt to become in France, began at once to manufacture certain of these articles. Inside of three weeks after the school started last June, one factory which previously had manufactured war munitions reorganized, invented an aluminum pressure-cooker, and turned out a thousand of them.

The American method of canning, that is, cooking fruit and vegetables in the jar, is spreading fast through all the civilized countries. The school held in France last year was attended by Algerians, Syrians, Armenians, and Egyptians who since have been teaching the people in their respective countries how to can a la American.

This year other countries besides France are requesting lectures and demonstrations on this work. Holland's Health and Nutrition Department, recognizing the value of plenty of fruits and vegetables in the diet of a people all the year around, has asked for 10-day lectures and demonstrations by the Americans. Denmark will call home her agricultural consuls this summer from all parts of the world for two weeks' instruction in food conservation to be given by Mr. Lund. Belgium and England also have requested the loan of the canning specialists.

The fact that in 1918, at a time when it was so necessary that nothing be wasted, the housewives and club girls in America were able to conserve nearly a billion jars of food has made a deep impression on people in other lands, who now are anxious to learn how it was done.

Give the Hogs a Fish Course.

The common domestic pig will never be able to write a book on table manners, but he knows how to order a meal as well as anyone. He is in a fair way to demand a fish course to supplement his salad and vegetable diet. He will take his fish in the form of fish meal, the refined by-product made from sound, wholesome raw material at the sardine, tuna, and salmon canneries, or from the menhaden.

The fish meal is not to be confused with "fish scrap," a coarser by-product much used for fertilizer; the meal is made from clean, sound material and is intended to be used as food for cattle and hogs. Formerly, the cannery waste was all made into "scrap" for fertilizer purposes, but the Bureau of Chemistry, United States Department of Agriculture, knowing the extremely high protein content of the scrap, has been active in converting this material into a high-grade protein feed. The cleaned, selected portion is ground to a fine, palatable meal which may be used to replace tankage in hog, poultry, or dairy rations.

Fish meal has been recommended as a supplementary ration before now, but popular prejudice against a badly prepared product has discouraged its use. The Department of Agriculture has proved by feeding experiments that fish meal equals the high-priced tankage as a ration ingredient, and better methods of selecting and milling have removed the causes of prejudice.

The oil content of the meal adds materially to its feeding value. So far the

experiments have shown that the meal does not taint the animal product, whether it be pork, butter, eggs, or milk. Moreover, by diverting the fish meals to his animals instead of supplying it directly to his land as fertilizer, the farmer loses but a trifle of its fertilizing value and gains its entire feeding value—thus making the material yield two profits in the place of one.

Firemen Aid in Dust Fires Work.

The dust-explosion investigations carried on by the Bureau of Chemistry, United States Department of Agriculture, is having a wide influence which has extended to many industries. The bureau began work with the object of reducing fires and explosions in the grain elevators and mills, but it was not long before the experts realized that these fires and explosions were by no means confined to the grain business. Aluminum dust, starch, and even fish meal, a by-product of fish canneries, have all been found susceptible to the conditions which produce disastrous explosions.

The latest development goes to prove that the mysterious "blow backs" so well known to firemen are in some cases caused by dust. With the knowledge of this fact as a guide many fatal accidents may be avoided. The firemen of America find the matter of sufficient importance to warrant their cooperation with the Department of Agriculture in a study of preventive methods. The subject was taken up by the National Firemen's Association at their twenty-second annual convention on May 18, 19, and 20, at Peoria, Ill. Engineers engaged in the dust-explosion investigations represented the Department of Agriculture at the meeting.

Peanut Oil Output Shows Gain.

Cold-pressed virgin peanut oil, a new American product, is becoming a formidable competitor of olive oil, say specialists of the Bureau of Chemistry, United States Department of Agriculture, who are making a study of edible oils. The fine flavor and excellent keeping qualities of the cold-pressed peanut oil make it a most desirable household oil.

The cold-pressed oil is made by a process different from that of the hot-pressed peanut oil, which until recently was the only peanut oil made in considerable quantity in the United States. The cold-pressed oil has a characteristic flavor, pronounced by many consumers to be far more delicious than the oils which are hot pressed and subjected to a refining process which leaves them practically tasteless. Cold-pressed oil when made from sound, sweet nuts need not be refined, and therefore retains its natural flavor.

This oil is highly nutritive and is as readily digestible as the best olive oils. It makes delicious French and Mayonnaise salad dressings and is a high-class cooking oil, especially when used for deep frying. Many discriminating housekeepers who during the war turned to the cold-pressed peanut oil for table use because they could not obtain the usual supply of olive oil, found it to be so delicious and so satisfactory for table use that they now prefer it to any other.

The production of peanut oil, including both the cold-pressed and the hot-pressed, in the United States has increased from 454,000 pounds in 1912 to 95,934,000 pounds in 1918, an increase of more than 21,000 per cent. The importation of peanut oil increased from 7,626,000 pounds in 1912 to 68,466,000 pounds in 1918. Practically all the imported peanut oil is hot pressed. Complete statistics for 1919 are not yet available.

It is apparent, say specialists, that cold-pressed peanut oil is winning for itself a place on the American table justified by its flavor, nutritive value, and digestibility.

Migratory Birds on the Increase.

A marked increase in migratory wild fowl throughout the United States, instead of the alarming decrease which led to steps for their protection, is noted in reports received by the Biological Survey, United States Department of Agriculture, from all parts of the country during the past few months. The change is attributed to the good effects of the migratory-bird treaty.

Friends of the migratory birds believe that the first important step for the perpetuation of the birds has been made, but that another one equally vital remains to be taken. This consists of the conservation and perpetuation of a sufficient number of small inland lakes, as well as island and coastal swamps and marsh areas, to provide the birds places for feeding and resting and rearing their young.

It is absolutely necessary, they point out, that the birds during migration and in winter have proper places in which to live. It is a mistaken idea, they say, that the drainage of almost any area is a benefit to the community. Under proper conditions, "water farming" of many lakes and ponds and of swamp and marsh areas will yield a distinctly larger return than would the same area if drained and used for agriculture. They summarize the productiveness of such farms as follows:

Food and game fishes.

Wild fowl to be shot for sport and food.

Furs from such fur bearers as the muskrats, skunks, and raccoons which frequent their borders.

A natural ice supply.

A definite and invaluable help in maintaining the underground water level in various parts of the State, and in helping to hold back the run-off of rainfall to prevent excessive erosion and other damage.

Opportunities for healthful and interesting recreation for the citizens of the State.

Where such water areas are included in State parks or reservations they lend themselves admirably to educational uses and help interest the people of the State in out-of-door life and in the natural resources of the State in the form of plant and animal life, which are important elements in supplying useful commodities.

Better Sires to Appear in Movies.

The Department of Agriculture is preparing a series of motion pictures and stereopticon slides for use in the "Better Sires" campaign. The interest aroused among the breeders of the United States is taking the form of requests upon the Department of Agriculture for information which, it is hoped, the film feature will be able to satisfy. It is probable that the motion pictures will be ready for issue next fall.

Disease Ruins Philippine Corn.

Uncle Sam's little brown nephews on the island of Bohol, P. I., are in serious straits for food, the downy mildew having ruined their corn crop. W. H. Weston, jr., of the Bureau of Plant Industry, United States Department of Agriculture, recently returned from a two-year trip in the islands, where he studied the disease. He reports that the damage done in the southern islands of the group is particularly disastrous and that the natives are at times reduced to eating the pith of the burri palm, which constitutes an emergency ration when the other crops fail.

The islands produce an annual corn crop valued at $8,820,000. Corn is the second most important crop in point of area planted; it is estimated to be about third in value. The islands do not produce enough of their principal foodstuff, rice, to supply their own uses, and the natives are forced to produce corn and to import rice from California and from oriental countries. When the downy mildew, sclerospora philippinensis, finds crop conditions favorable, the result is an acute situation in the food problem of the natives.

The Bureau of Plant Industry has made a thorough study of the disease, and its life history is known. Preventive methods have been developed which have been successful in controlling the disease, even where conditions were worst. There is no reason known why the mil-

dew would not flourish in the southern part of the corn belt in this country if it once obtained a foothold. Every resource of the Department of Agriculture is directed toward the prevention of such an invasion, however, and the Philippine corn is under a quarantine imposed by the Federal Horticultural Board.

Let Your Bull Indorse Your Note.

The Better-Sires campaign conducted by various States in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, is developing the fact that bank credit is as available to the progressive live-stock farmer as to the progressive business man of the city.

A letter received by the Bureau of Animal Industry reports the following announcement published by a Wisconsin bank to its farmer patrons:

"Why not keep some of those pure-bred Holsteins home? Many fine animals will be sold at the first annual sale of the Brown County Holstein Breeders' Association to be held in the Brown County Fair Grounds, West De Pere, Wis., on Monday, May 10. The ——— Bank is ready to stand back of any of its customers who wish to purchase some of the stock to be offered for sale and who do not feel able at present to carry the investment. Call at the bank, and the accommodation can be easily arranged."

Should Know Market Conditions.

In addition to knowing the grade and staple of his cotton, the cotton farmer must be fully informed regarding market conditions and must have proper outlets for his cotton if he is to secure its full commercial worth, say cotton specialists of the Bureau of Markets, United States Department of Agriculture.

Every farmer offering cotton for sale ought to know the course of the futures market on the particular day; the course of the spot market in the city or cities to which his own market is tributary; the course of the spot market in other cities that are comparable to his own, and other special conditions that may affect the value of his cotton.

The Bureau of Markets is supplying a part of this information through its price quotation service. The cotton belt is divided into five districts, with headquarters at Charlotte, Memphis, New Orleans, Dallas, and Atlanta, and from each of the four first-named points a bulletin is issued on Monday of each week, giving disinterested and trustworthy information as to the course of prices and market conditions. As soon as available men can be secured, similar bulletins will be issued also from Atlanta. Any farmer requesting this service will receive free of charge the bulletins issued from the headquarters of the district in which he resides. As prices vary from day to day and from hour to hour, farmers may make arrangements to secure by telegraph any information contained in the bulletins.

Graded Eggs Bring High Prices.

Can it be that Canadian citizens are profiting more by the advice of the Bureau of Markets, United States Department of Agriculture, regarding the marketing of eggs than our own people for whose benefit that advice is intended?

Because of the superiority of Canadian eggs, due to grading, packing, and shipping methods similar to those advocated by the Bureau of Markets, Canadian

Canadian eggs are carefully graded as eggs sell for 3 to 17 cents higher in British markets than American eggs.

to quality, size, and color; packed in clean cases with clean fillers of proper weight, and provided with adequate refrigeration.

The wide difference between the selling prices of American and Canadian eggs should not exist, say marketing experts of the Bureau of Markets. Canadian hens do not produce better eggs than American hens; and that being so, all that is necessary for American shippers to secure high prices is the use of greater care in preparing eggs for foreign markets. The same principles apply to eggs marketed at home.

Full information as to methods to be employed can be had upon request to the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

SUCCESS ATTENDS GROWING OF EARLY GRAIN IN ALASKA

Experiments conducted by Government stations in Alaska for securing early ripening cereals are meeting with remarkable success, particularly with wheat, according to reports received by the States Relations Service of the United States Department of Agriculture. The wheat is characterized by its hardness, and the quality of the baking produced from the flour is excellent, say specialists of the department.

A sample of the flour was submitted recently to the Bureau of Chemistry and given a thorough chemical and baking test. Dr. Le Clerc, who conducted the tests, reports that the baking qualities of the flour shows that in volume, texture, and elasticity the loaf is almost equal to that produced from standard flour.

"It is one of the best whole wheat or Graham flours ever tested in the laboratory," declared Dr. Le Clerc.

The sample was submitted from the Government experiment station at Fairbanks, Alaska, where a small mill for grinding was installed in 1918. During the first season the mill produced considerable whole wheat or Graham flour. During the past season a bolting device was added to the mill and white flour is now being produced. Other Alaska experiment stations, especially that at Rampart, likewise are engaged in this work, which has been in progress for about 10 years with very satisfactory results.

A large number of varieties of cereals from various parts of the world have been tested at the stations and selections made from the earliest maturing ones for further experiments. Head to row plantings have been made for several years and a number of strains have been secured that ripened several days earlier than the riginal varieties. In addition to selection work, a large amount of hybridization has been done at the Rampart station, and after crosses are produced and the desirable strains established they are sent to the Fairbanks station for extended trial on a field scale.

In 1918 a distribution of seed grain was made to a number of farmers in the Tanana Valley in an effort to induce them to begin grain production on an independent basis. The results for the first year were so suggestive of possibilities that the experiment was repeated in 1919. A thrashing report was received by the department recently which showed that in 1919, 22 farmers in the Tanana Valley produced 1,128 bushels of spring wheat, 2,811 bushels of oats, and 121½ bushels of barley.

In addition the station at Fairbanks produced in the same season 303 bushels of spring wheat, 774 bushels of oats, and 125 bushels of barley. The amount of wheat yet to be thrashed is estimated at about 600 bushels, making the total production of grain more than 5,000 bushels.

TO PRESERVE OKEFINOKEE SWAMP.

A movement to preserve the natural wonders of Okefinokee Swamp, the last of the three great swamps of the Atlantic seaboard, is on foot, and the Okefinokee Society has been formed for the purpose of raising funds privately for securing the swamp for a reservation and presenting it to the Government. According to the Biological Survey of the United States Department of Agriculture the swamp, which covers 700 square miles in Georgia, has no counterpart anywhere in the world. It is now threatened, it is said, by commercial exploitation which would destroy its primeval condition.

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UNITED STATES FACES FOREST DEPLETION, SECRETARY STATES

Nation Uses Timber Four Times as Fast as it is Being Grown.

Eastern States Fall Far Short of Meeting Their Own Needs—Two-Thirds of Country's Timber is West of Great Plains.

The high cost of lumber and newsprint is due in no small measure to the using up of the forests east of the Great Plains, declared E. T. Meredith, Secretary of Agriculture, in forwarding to the Senate a report by the Forest Service on timber depletion, called for by a resolution of Senator Capper.

"Scarcity of timber in the Eastern States is by no means the only cause of high prices," said Secretary Meredith. "Forest products have shared in the wave of inflated values. An auction lumber market would have resulted in any event from the sudden release of pent-up demands for housing and industrial material at a time when lumber stocks were short and the sawmills unable to respond rapidly with increased production. But the facts remain that three-fifths of the original timber of the United States is gone; that we are using timber four times as fast as we are growing it; and that nearly two-thirds of the timber left is west of the Great Plains, where its availability to the average user is greatly lessened."

Eastern States Fail to Meet Needs.

The Forest Service estimates that 2,215,000,000 feet of timber is left in the United States. Nevertheless, the bulk of its population and industries are handicapped by the exhaustion of the forest regions which formerly supplied them. New England has one-eighth of her original timber. New York manufactures about one-tenth of the lumber required by her own population. The present lumber cut of Pennsylvania is less than the amount consumed in the Pittsburgh district alone. The States on the Great Lakes, which for 30 years supplied most of the eastern and central regions with softwood lumber, now cut less than one-eighth of their former production, and are themselves importing softwoods from the Pacific Coast. The cut of Southern pine, the standard lumber of the East for the last 15 years, is now falling off. Within a decade it will not exceed the requirements of the South itself.

The Secretary of Agriculture pointed out that the freight bill on the average thousand feet of lumber used in the United States was rising steadily. The falling lumber cut in the East and its concentration in a few regions increases the effect of car shortages, labor troubles, and bad weather upon lumber stocks and prices. It marks the disappearance of effective competition between groups of sawmills in different manufacturing regions, which has been the great leveler of the lumber market.

MUST GROW MORE TREES.

"Timber depletion has not resulted from the use of our forests, but from their devastation. There are 463,000,000 acres of forest lands of all classes in the United States, including burned, culled, and cut over. Of this amount 81,000,000 acres is an unproductive waste. Upon enormous additional areas the growth is so small in amount or of such inferior character that its economic value is negligible. These forest lands will produce the timber required by the country if they are kept at work full time growing trees. But unless timber growth takes the place of devastation from forest fires and destructive methods of cutting, our consumption of lumber must drop to the level of European countries, where wood is an imported luxury."—Secretary Meredith.

Softwood Lumber Now High.

The Forest Service reports that building grades of softwood lumber retailed in the Middle West for $15 to $20 per thousand feet prior to 1900, when the material was cut in the Lake States, and for $25 to $35 per thousand feet somewhat later when southern pine supplied this market.

(*Continued on page 2.*)

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NO CHANGE IN WHEAT GRADES, SECRETARY MEREDITH DECIDES

To Lower Present Standards Would Reduce Farmers' Returns, He Says.

War-Time Conditions Prevented Fair Test for Grades in Force—Decision Follows Hearings at Chicago and Washington.

That no change should be made in the present Federal standards for wheat is the decision of E. T. Meredith, Secretary of Agriculture, made public following hearings recently held in Washington and Chicago at which the Secretary presided. The hearings were the result of representations made to the Secretary that dissatisfaction existed in the Central Northwest with the present Federal wheat grades for Hard Red Spring and durum wheats. At the first hearing in Washington some producers from certain sections urged that changes be made to take effect at the beginning of the coming crop year, involving a distinct lowering of the standards for Hard Spring and durum wheats. At this first hearing a delegation from the Central Northwest presented its views; at the second hearing in Washington a delegation of grain dealers and representatives of grain trade organizations from Texas, Oklahoma, and Illinois were heard; and at the third hearing, held at Chicago, representatives of producers, the grain trade and millers discussed the proposed changes. All interests concerned in production, marketing, and handling were heard on the proposals.

Would Reduce Farmers' Returns.

"The request made by the Central Northwest delegation for a general lowering of the present standards for Hard Red Spring wheat and durum wheat," says Secretary Meredith, in announcing his decision, "was made apparently on the theory that, under the standards they proposed, the producer would receive more money for his wheat. The arguments made in support of this theory were not convincing and were not sup-

ported by evidence. On the other hand, the testimony seemed to prove that, under free and open competitive marketing conditions, the lowering of the present standards would tend to reduce the return to the farmer. The department's studies of grain marketing support the latter view."

The exceptional facilities which the department has for a study of the question of wheat grades are set forth by the Secretary, who explains that "for more than 10 years the Department of Agriculture has been gathering samples of wheat in every part of the country in which wheat is produced or marketed, during all stages of the harvesting, marketing, and utilization of wheat, and in every season. All the grading standards established and used for many years by State and trade organizations have been collected and carefully studied. Records have been kept of grades assigned by commercial inspection organizations, and the samples collected by the department have been analyzed and the information derived from such investigations recorded in detail, tabulated, preserved, and compared with data obtained from outside sources. No other single organization has any such collection of data."

Opposition Against Changes.

In announcing his decision, which has been published in pamphlet form for free distribution, the Secretary takes up the various recommendations in detail, in each case giving his reasons for adhering to the present standards and pointing out that his conclusions have been reached only after a study of records on the subject which undoubtedly are more complete than those possessed by any other organization. He states also that at the second and third hearings overwhelming opposition was manifested against any changes in wheat standards for the coming crop.

"At the second hearing at Washington and at the hearing at Chicago on April 2, 1920," the statement continues, "great opposition was voiced against any change this year in the standards for wheat now in force. After the announcement of the public hearing held in Chicago many letters and telegrams from farmers' organizations, State officials, grain dealers, and millers' organizations in different sections of the country were received opposing change in the standards; in fact, many of these expressed the desire for even higher standards, thereby making higher requirements for the better grades of wheat.

"The Federal wheat standards were established and promulgated in 1917 and revised in 1918. They have been operative only under fixed price and war conditions and consequently opportunity for fair test of their merits or defects has not been afforded under normal marketing conditions. It is believed that any injustice to producers of wheat that may have resulted from fixed prices during the war will be eliminated when normal competitive marketing conditions again prevail. In the circumstances, it is not deemed practicable to change the present Federal wheat standards until experience has been had during a period of normal marketing conditions, and this belief was shared by the majority of those whose views were expressed on the proposed changes."

The report is accompanied by a copy of the recommendations submitted to the Secretary by the Northwest delegation, and it sets forth the considerations which induced the Secretary to decide against the lowering of test weight per bushel requirements; against raising the moisture content limit for the higher grades; against permitting a higher percentage of rye; against cheapening of the subclass "Northern Spring" by admitting into this subclass inferior wheat. In each case the Secretary points out wherein the change would work no benefit to farmers, but would penalize those growers who are producing wheat of the higher value for milling and baking purposes. The report is accompanied by three charts illustrating relation of the test weight per bushel to the flour yield of the wheat as ascertained by milling experiments of the department and other investigators; the relation between moisture content of wheat and the value of the wheat; and the moisture content of wheat in different crop years.

Copies of the Secretary's decision may be had free by addressing a request to the United States Department of Agriculture, Washington, D. C.

UNITED STATES FACES FOREST DEPLETION, SECRETARY STATES

(Continued from page 1.)

Now, with western lumber taking over the territory, the price level has advanced to $80 or $85. Practically every softwood market in the United States reflects these distinct and advancing price levels as the result of local timber depletion. Lack of competition contributes to the increase. Instances are cited where the consumer of certain lumber grades in the Ohio Valley has paid as much as $50 per thousand board feet more than the consumer of the same grades on the west coast over and above all transportation charges.

"Other existing evidences of timber depletion," said Secretary Meredith, "are the scarcity and excessive cost of timber products of high quality, particularly of hardwoods, which already is critical for many American industries, the shrinking production of turpentine and rosin in the southern pineries, and the necessity of importing two-thirds of the newsprint which the United States requires.

"Timber depletion has not resulted from the use of our forests, but from their devastation. There are 463,000,000 acres of forest land of all classes in the United States, including burned, culled, and cut over. Of this amount 81,000,000 acres is an unproductive waste. Upon enormous additional areas the growth is so small in amount or of such inferior character that its economic value is negligible. These forest lands will produce the timber required by the country if they are kept at work full time growing trees. But unless timber growth takes the place of devastation from forest fires and destructive methods of cutting, our consumption of lumber must drop to the level of European countries, where wood is an imported luxury."

No Great Lumber Monopoly.

The Secretary advised the Senate that there had been no marked change in the concentration of timber ownership during the last 10 years. About 250 large owners control half of the private timber in the United States. The speculative holding of timber has been checked to some extent, some of the principal properties have been decreased, and the present tendency is toward manufacturing operations. He reported that no information had been obtained to justify a conclusion that a lumber monopoly of any great scale exists.

At the same time the lumber industry is, in part, being more closely organized in large operating and marketing groups. Although there is still a very large number of individual timber owners and sawmills, the larger interests are securing a more dominant place in lumber manufacture in the West. As timber depletion goes on these large owners will more closely control the remaining supplies, particularly the old growth of high quality. This situation points toward a natural monopoly of our high grade softwood timber.

Secretary Meredith indorses the position taken by the Forest Service that the fundamental need arising from this situation is to grow trees. He strongly urges a national policy of reforestation. The most effective attack both upon excessive prices and possible monopolies of lumber or newsprint is the production of timber as a steady crop on nonagricultural lands in all parts of the country. The immedi-

ate steps which the Secretary recommends to Congress are an enlargement of the National Forests on a wide scale and legislation which will enable the Forest Service to cooperate effectively with the States in stopping forest fires and growing timber on State and private land. At the same time a comprehensive survey of the forest resources of the United States should be made, concerning such matters as the quantities of timber available for each form of use, the classification of land as between the production of timber and farm crops, and the timber growing resources and timber needs of each region.

DISCUSSES TIMBER SUPPLY MENACE BEFORE FORESTERS

Lumber is certain to lose its present importance in North Carolina and become one of the minor industries if measures for conserving present timber supplies are not taken speedily declared Assistant Forester E. E. Carter, of the United States Forest Service, in an address before the North Carolina Forestry Association at Asheville, N. C., recently. Mr. Carter discussed the results of an investigation of lumber conditions throughout the United States which the Forest Service made in response to a resolution presented to the United States Senate by Senator Capper. This resolution called for a report on the timber supply of the country, the effects of present depletion on the high cost of materials, and the effects of lumber exports on domestic industries.

Mr. Carter's address showed that unless the young forests in North Carolina and adjacent States are protected from fire and wisely managed, these regions which are now shipping lumber to other parts of the country soon would be forced to import supplies for their own use.

The question of adoption by the State of a definite forest policy came up for discussion. The need for such a policy, including an adequate organization for the prevention and suppression of forest fires was emphasized by the assistant forester, as it had also been emphasized in the forest service report to the Senate.

Although North Carolina still has a considerable amount of timber, cutting is progressing at a rapid rate and the remaining old-growth forests are bound to disappear unless a definite conservation program is adopted by the State. On account of the mountainous character of a large part of the State and the heavy rainfall it is said by foresters to be all important to take steps now to prevent denudation of important watersheds. Gov. T. W. Bickett, a number of prominent lumbermen and others interested in forestry also spoke before the association.

OUR FOREIGN TRADE IN AGRICULTURAL PRODUCTS

By E. T. MEREDITH, Secretary of Agriculture.

A knowledge of the market is essential if the farmer is to organize and operate his business to best advantage. Something like one-fourth of his produce goes to foreign countries. Hence to know his market conditions it is essential that he know something of the foreign as well as of the domestic market. A study of foreign markets for our farm products will bring home to him that if the foreign outlet were blocked, there would be left in this country, frequently, a surplus that would exert a disastrous effect on prices to farmers. The export business in agricultural products is very large. In 1919, it constituted approximately 55 per cent of all exports. Agricultural products exported were worth about $4,250,000,000, while all other products exported were worth $3,500,000,000.

The farmer ought to be interested in knowing how and why his prosperity depends, in large measure, upon foreign markets. The farmer is in a position to do more toward promoting foreign trade than may appear at first glance. Practically every farm commodity is now represented by some large organization and all of them are keenly interested in export trade in farm products. Yet the growers who compose the organizations have given too little thought to what a foreign outlet means to them. The cotton growers, about 60 per cent of whose product goes to foreign markets, knows a great deal about it. So do the growers of some types of tobacco that go almost exclusively to specific foreign markets. So do some apple growers and some citrus fruit growers. The rank and file of farmers, however, give the matter practically no thought.

Should Know Foreign Markets.

It is highly desirable that the farmers and their organizations avail themselves of all possible sources of information on foreign marketing. The Department of Agriculture is in a position to give them assistance. The Bureau of Markets, through its foreign marketing service, is furnishing information on foreign supplies assisting in establishing standard grades not only to improve the quality of American products but to facilitate trading, and is making investigations of shipping and storage problems to aid in placing the products on foreign markets in good condition.

A representative is stationed in London, devoting his time to putting American producers in touch with British markets. It has been planned to place six such representatives at strategic points over the world. Trade commissioners are sent to foreign countries when the opportunity to open up a new market appears promising. Two live-stock commissioners were sent to South America last year and two others will leave in a few days to spend the greater part of the coming summer in the same field. Several shipments of purebred live stock to Brazil and Uruguay have already resulted and prospects are good for a broad field for future trade. Plans are now under way for sending two grain men to Europe to demonstrate the grades on which trading in grain is now done in this country. It is proposed also, when the apple shipping season begins, to put men on the ships carrying them to foreign markets to find out the causes of losses in apples shipped overseas and to devise means for reducing them.

Summaries of foreign trade information are published weekly in The Market Reporter. The department would like to have farmers' and producers' associations make as free use of this material as possible, and to call for any other information that our specialists can furnish.

To Pay for Foreign Products.

Every farmer must have foreign products—such, for instance, as coffee, tea, sugar, cloth, and manufactured articles. To secure these foreign products, we must have something to give in exchange for them. It is a matter both of personal and of national importance, therefore, that the American farmer have something to sell abroad. The falling off in the export demand for American condensed milk that had been built up during the war has resulted in the closing of many condensaries during the past three months. It is necessary to convert into butter and cheese the milk that has been going to Europe in condensed form—and milk for butter and cheese are worth only about two-thirds as much as Europe paid for the condensed milk. But there should be another outlet for condensed milk. The tropical regions that have been taking a profit on sugar from this and other countries need condensed milk and this market might have been developed more speedily if our people generally had known more about it.

The losses that dairy farmers are sustaining because of the surplus of fluid milk is typical of what is likely to happen when any foreign outlet is closed. It is essential to the prosperity of farmers that a fairly steady stream of farm products is kept flowing to foreign markets. The outstanding articles will probably continue to be cotton, tobacco, grain, and apples. It is therefore of prime importance that producers of these products be kept informed on foreign market conditions.

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MARKET INFORMATION BY WIRE REDUCES LARGE ANNUAL LOSS

Many thousands of dollars are lost annually by growers of sweet potatoes because of lack of knowledge regarding proper storage and marketing methods, say specialists of the Bureau of Markets, United States Department of Agriculture.

Losses from faulty methods of storage are enormous. It has been estimated that approximately 50,000,000 bushels were stored in earth banks last season. The usual waste of about one-half by rot and shrinkage would show loss of 25,000,000 bushels, worth in producing sections at least $30,000,000. Better types of storage houses have shown a loss of not over 2 per cent. The rapid gain in number of well-constructed storage houses is leading to increased shipments.

Sweet potato producers also lose money by not keeping sufficiently informed as to market conditions. Not only should they be thoroughly familiar with conditions at near-by market centers, but with conditions at other markets as well. Compared with the total crop or with the movement of white potatoes, relatively few sweet potatoes are shipped north, although there is often a good demand for them at some points. The farmer should know where these points are and should know which types or varieties are preferred.

To help the farmer keep in close touch with market conditions, the Bureau of Markets furnishes daily information with regard to the volume of receipts of fruits and vegetables at various market centers throughout the United States, the source, variety, grade, and condition of the stock offered, the prices paid, and the demand. The Bureau receives this information from special representatives located at the markets and sends it by mail to farmers upon request. The Bureau has also a telegraphic arrangement whereby farmers can secure the information immediately upon payment of the wire charges.

The Bureau of Markets has made a study of sweet potato storage and marketing methods, and is anxious to give the farmer the full benefit of its investigations. This service is available to farmers upon request.

TEXAS FARM BOYS WILL TOUR BIG FARM AREAS NEXT MONTH

A special train bearing 150 or more Texas farm boys selected through a competitive examination will shortly make a swing around the best agricultural regions of the Central Western, Northern, and Southern States. The tour, which will be both educational and investigational, will be under the joint direction of the extension service of the Texas Agricultural and Mechanical College and the Texas Chamber of Commerce.

The purpose of the tour is to give the young Texans an opportunity to see and study at first hand the best methods of the most successful farming areas of the United States. It is believed, too, the trip will fix in the boys' minds high standards and right ideals of country life. They will have an opportunity to study practically all branches of farming carried on in the areas visited. In addition they will visit big packing plants and produce markets.

It is expected the trip will cover about 4,000 miles and require about 20 days. According to present plans, the boys will start about July 31.

TEST UPHOLDS CLAIMS MADE FOR SUMMER PASTURE GRASS

Additional evidence of the high summer-pasture value of Sudan grass, as claimed by the United States Department of Agriculture, is seen in the results of experiments recently completed by the Kansas Agricultural Experiment Station. It is declared that the grass will prove very important as a summer-pasture grass, especially in the Central West.

In a test carried out on the experiment farm at Manhattan, Kans., six Holstein cows were pastured on a 5.4-acre upland field of Sudan grass from July 10 to October 11. The grass was seeded June 6, and during the early part of the season cows were unable to keep the grass eaten down. This made it necessary to mow the grass in the latter part of July; and 7.33 tons of field-cured hay were obtained in addition to the pasturage.

Estimating the value of the butter fat at 60 cents a pound and the skim milk at 50 cents a 100-pounds, the six cows produced $183.09 worth of butter fat and skim milk above the cost of the grain fed in supplementing the pasturage. Crediting the field in addition with the 7.33 tons of hay at $10 a ton, gives it a total credit of $256.39, or $47.47 an acre. If the milk had been sold at 30 cents a gallon the credit for the pasture would have amounted to $73.55 above the cost of the grain.

The results of this definite experiment added to the large number of unsolicited testimonials of farmers, it is said, make the value of Sudan grass as a summer-pasture grass in favorable seasons seem beyond dispute.

SHOWS DIVERSITY OF BREEDS FAVORED ON POULTRY FARMS

The diversity in breeds and varieties of poultry kept on farms in the United States is being shown with increasing evidence by the "Better Sires—Better Stock" movement. The enrollment blanks of persons joining the campaign—which involves the use of purebred sires in all classes of live stock kept—indicate that Rhode Island Reds, Leghorns, and Plymouth Rocks are the more favored breeds. Yet the less common breeds and the rarer varieties of the popular breeds are listed to a surprisingly large extent. Black Leghorns, Silkies, Partridge Rocks, and Indian Runner ducks were all mentioned among the live stock on eight Colorado farms.

The tendency toward improved poultry is even more noteworthy, from the fact that the blanks do not call for the names of varieties, and in all the cases mentioned that information was volunteered. Incidentally flocks of poultry headed by males of pure breeding show a greater percentage of standard-bred females and a smaller percentage of scrubs than any other class of farm live stock.

Sheep scab is exceedingly contagious and is transmitted by direct contact with animals or objects that are carriers of the mites. Although unable to propagate except on sheep, the mites may be harbored temporarily by animals other than sheep and may live on goats for a long period.

Crop Reports Benefit Whole Country, Primarily Farmers, Says Secretary

A farmer in Oklahoma recently wrote to Secretary Meredith asking his personal opinion of the benefit of crop reports to farmers, and whether or not the reports play into the hands of the speculators. He expressed the opinion that the expense of issuing the Monthly Crop Reporter might well be saved to the Government. The Secretary replied in the following letter:

"I have your letter of May 9, in which you ask several questions regarding the value of the monthly crop reports, which I shall take pleasure in answering.

"Your first question is 'What benefit does the farmer receive from the monthly crop report?' Farmers are benefited directly and indirectly. Because the reports cover crop and live stock conditions, present and prospective supply, for all States, and because they are unbiased, disinterested, and as nearly accurate as it is practicable to make them, farmers can use the information they contain as a guide to planting and marketing; that is, by observing whether the indicated supply is or will be relatively large or small as compared with previous years the farmer can decide intelligently whether to increase or decrease the acreage in a particular crop, and whether to sell his harvested crop immediately or hold for a probable advance in price at a later date. Hundreds of farmers have written the department that they have profited from a few hundred to several thousand dollars in a single season by regulating their plantings and marketings in this way, and many farmers state they have obtained top prices year after year by studying the crop reports. Every farmer could and should do the same.

Reports Vital to Handling Crops.

"Indirectly the monthly crop reports benefit farmers in many ways. For instance, all banking institutions study the Government estimates of crop acreages and prospects and the live-stock estimates as a guide to the amount of funds that will be required, and which they will be called upon to advance for financing farmers through the crop season, as well as the movement of crops after harvest. Railroads use the crop reports as a guide in arranging to supply cars when and where needed for moving crops and live stock, so far as cars are available for that purpose. Manufacturers, merchants, dealers, and business men are all interested in the crop report, because it enables them to plan their operations far enough in advance so that the machinery, farm equipment, and supplies which farmers will require can be supplied when and where needed, thereby avoiding costly and annoying delays; and to the extent that business men avoid losses they can afford to sell at reduced prices, which benefits farmers as well as other customers.

"Crop reports are of fundamental importance to all marketing and distributing agencies, and to the extent that the risk involved in buying farm products and carrying them in storage until needed is reduced, legitimate buyers can operate on smaller margins, and therefore, in competition with each other, they can afford to pay higher prices to farmers. Furthermore, dependable information with respect to crop acreages and crop and live stock production is necessary for economical and effective work by the Federal Department of Agriculture, the State colleges of agriculture and experiment stations, the extension services and county agents, and all Federal, State, and local agencies organized for the promotion of agriculture. This is especially true of the farm organizations which are developing rapidly in many States; their first need is for dependable information on the factors of present and prospective supply and demand which greatly influences prices. Crop and live stock statistics furnish national and State legislators the only sure basis of wise legislation in the interest of agriculture. It should be remembered, also, that the data regarding acreages, numbers of live stock, and total production by States, and for the United States, collected and published by the Bureau of Crop Estimates, afford the only dependable information of this character which is available between the 10-year censuses, and this information helps farmers by advertising the actual resources of their States, as well as by giving them current information as a guide to planting and marketing operations. Few people realize that most of the crop and live stock data which appear in the farm and city press weekly and monthly are derived almost wholly from the crop and live stock reporting service of the Department of Agriculture.

Results Far Outweigh Cost.

"I note your reference to the cost of publishing the Monthly Crop Reporter. The entire cost of the Bureau of Crop Estimates for furnishing information with respect to more than 60 crops and 6 classes of live stock on nearly 7,000,000 farms monthly and annually in 48 States, is about the same as the cost of the ginning reports issued by the Census Bureau on the one-crop cotton which is grown in only 15 States. Many corporations spend more money for an accounting and statistical service than the entire cost of the statistical service of the United States for agriculture, which is an $80,000,000,000-industry. The estimates of the commercial apple and peach crops, which is a minor feature of the bureau's work, is said to have been worth more than a million dollars to the apple growers alone last year, or nearly three times the entire cost of the bureau. The president of a county cooperative potato association in Minnesota, when it was reported that Congress was about to reduce the appropriation of the Bureau of Crop Estimates, telegraphed that the potato reports alone were worth more than $100,000 to the growers of that one county last season, or nearly one-third the entire cost of the crop and live stock reporting service. There are about 3,000 counties in the United States. In fact, considering the interests involved, it is believed that the appropriation for this work, which is of such great practical and financial value to nearly 7,000,000 farmers, should be increased in order that the crop reporting service may be expanded and improved. As a matter of fact, the present cost of the Bureau of Crop Estimates represents a tax of about a one-cent postage stamp for every three persons in the United States.

Lack of Money Hinders Work.

"You state that the Monthly Crop Reporter is a mass of figures which are not read or remembered. The value of a mass of figures lies in the comparisons which are made, one date with another, to show the relative increase or decrease, and figures are necessary for this purpose. The Bureau of Crop Estimates realizes that there are many people who do not know just how to use tabulated figures for making comparisons; but because of the inadequate appropriation the bureau has no funds with which to employ a few competent men to summarize, analyze, and interpret the tabular statements and to show by means of short text statements illustrated by diagrams just what the figures mean; and even if such statements and diagrams were prepared at the present time they could not be printed because of lack of funds. That is why the Bureau of Crop Estimates is forced to condense and to present its material mostly in the form of bare figures. Congress was asked for a small increase in the appropriation for this very purpose, so that the real facts disclosed by the

figures might be presented so clearly that anyone could understand them without reference to the figures, but Congress not only failed to grant any increase but actually reduced the appropriation.

"You further express the opinion that the monthly crop reports play directly into the hands of the speculators. As a matter of fact, the contrary is true. Speculation thrives and depends upon lack of information, uncertainty, and confusion on the part of farmers and the public. Crops and live stock are grown in the open and can not be hid. Speculators have their own means of getting information and no one can prevent them. Speculators get information all the time, by letter and by telegraph, through traveling salesmen, local buyers and dealers, country merchants and bankers, through crop experts employed by them at high salaries, and through various private crop reporting agencies. Were it not for the Bureau of Crop Estimates, which is a disinterested Federal agency through which farmers can pool information regarding local conditions and have it summarized by the bureau into an accurate report for the whole country, farmers and the public would be at the mercy of speculators who would be free to issue any sort of misleading reports designed to influence prices to their own advantage, and farmers would have no means of checking them up. The crop reports injure no one but the speculators, who could well afford to pay many times the entire cost of the bureau to have the Government crop reports discontinued or discredited. In fact, the only influential request received by the department from any source in recent years for the suppression of the crop report came from one of the largest speculative exchanges in the country. In their own interest and in the interest of agriculture generally, farmers should cooperate with the Bureau of Crop Estimates by reporting conditions in their neighborhoods, and should not criticize or disparage the crop reports as inaccurate or detrimental to the interests of farmers because by doing so they are likely to play directly into the hands of the speculator.

Reports Are of General Interest.

"You say that it does not help the northern farmer to know in August that cotton is 25 per cent short, or the cotton farmer to know that corn is 30 per cent of normal. I think you are greatly mistaken in this. Farmers are consumers as well as other people, and are therefore interested in the present and prospective supply and prices of the things they have to buy. The northern farmers, as well as all other consumers, are directly interested in the size of the cotton crop, because the size of the cotton crop has a direct bearing on the price of cotton and of the clothing made from cotton. In the same way the cotton grower is directly and financially interested in knowing the prospective size of the corn crop, because many cotton growers must still buy corn for feed, and this is an important item in the cost of producing cotton. Furthermore, the northern corn grower and the southern cotton grower are alike vitally interested in knowing the prospective size of these crops in all States, because the selling prices of both crops are determined in considerable measure by the relative supply, and the selling prices of their crops determine whether or not their farm business is to result in a profit or in a loss.

"Farmers should realize that the prices of their products are determined largely by the relative supply, because the demand remains fairly constant, and that the law of supply and demand which determines or influences these prices is not limited to any particular county or State, but is nation-wide, and for some crops world-wide. Regardless of what is grown in your own county, or even in your own State, the price you get for what you have to sell will depend largely upon what is produced by farmers in other States and countries; and before you can decide intelligently whether it will pay you to grow more or less cotton, or corn, or any other crop, or whether to sell your crop or live stock now or to hold it until later on, you must know something about the relative supply produced in other States and countries. It is this information which the Government crop reports supply more accurately and more dependably than any other agency, and it is this sort of information which farmers must learn to use, as it will help them to make their business profitable.

Farmers Urged to Help.

"I am glad that you wrote directly to the department and expressed your doubts frankly relative to the value of the Government crop reports, so that I can answer your questions in the same spirit. I wish it were possible to place a copy of this letter in the hands of every farmer in the United States, in order that he might know that the crop and live stock reporting service of the Bureau of Crop Estimates is probably the best of its kind in the world; that it was established more than half a century ago and has since been maintained primarily for the benefit of farmers and business men; that it is an absolutely unbiased, nonpartisan, business service, as nearly accurate as it is possible to make it and therefore the most dependable source of information available to farmers and the public; and that, to be of greatest practical value, farmers should cooperate with the bureau in supplying information for their neighborhoods, and should have full confidence in the Government crop reports and make practical use of them. May I suggest that the editor of your county newspaper may wish to publish this letter for the information of other farmers in your county.

"Will you please let me know whether I have answered fully and whether you feel now the reports are of value to the farmers?"

MORE THAN ONE DIP NEEDED TO FREE SHEEP FROM SCAB

A single dipping usually fails to rid a flock of sheep from scab, according to findings by specialists of the United States Department of Agriculture.

The apparent reason is either that all the females in the course of depositing eggs at which time they appear especially tenacious of life, or all the eggs already deposited have not been destroyed by the dipping; consequently, after the eggs which may have escaped the first dipping have had an opportunity to complete their incubation, it is essential to dip the sheep again.

It is also essential that the second dipping take place before any mites which may hatch out after the first dipping have had time to become mature and deposit more eggs. As the eggs on the body of the host usually require 4 days' incubation, sometimes a week, and probably never more than 10 days, and as 10 to 12 days are necessary for the young mites after hatching to grow to maturity, mate, and deposit their eggs, it would appear that the best time for the second dipping is about 10 days after the first, as all the eggs will have hatched, while practically none of the new generation of mites will have developed sufficiently to deposit eggs. Practical experience has shown that the second dipping may be delayed until the fourteenth day without unfavorably affecting the results of the treatment, but wherever possible it is preferable to follow the 10-day rule.

Copies of Farmers' Bulletin 713 will be furnished upon request of the Department at Washington, D. C.

Prickly pear is green and succulent and admirably adapted to produce "good condition" in cattle when used with dry feeds. Cattle in brushy pastures are known to have subsisted upon it even without water for long periods.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING.

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

To Urge Delivery of Machines.

Cotton farmers who have planned to poison the boll weevil with calcium arsenate are getting nervous over the failure of manufacturers to deliver dusting machinery as promptly as had been expected. The cart duster type, which will take care of a hundred acres of cotton to the machine, is largely supplanting both the hand gun and the engine-power duster, but hundreds of farmers who have made purchases have thus far not been able to get the machines delivered. The United States Department of Agriculture, whose specialists developed both the machine and the system of poisoning, is endeavoring to speed up the delivery. Both the Bureau of Entomology and the Bureau of Markets are at work on the problem, and no effort will be spared to get the machines to the planters by the time the boll weevil reaches the injurious stage.

Many Farmers Growing Sorghum.

A marked increase in the production of sorghum sirup is indicated by reports received by the United States Department of Agriculture, which has been engaged in a special campaign to induce greater production of this crop because of the keen demand for sugar substitutes. At the beginning of the World War the annual yield of sorghum sirup in the United States was approximately 13,000,000 gallons. This has increased steadily until for the past year it was approximately 30,000,000 gallons. The average yield of sirup per acre has been about 100 gallons, but the fact that this figure can be increased is indicated by the department's experiments, in which more than 400 gallons per acre have been produced in some localities.

In urging increased plantings to sorghum the department's experts point out that despite the increasing yields the demand is still greater than the supply, as shown by the price for sirup, which has ranged from 90 cents to $1.50 per gallon, and in a few cases even higher.

There are abundant opportunities for increasing the sorghum production, the experts say, since this crop can be grown in every State in the Union with the possible exception of Maine. In the northern States it is necessary to plant early-maturing varieties of sorghum. "Early Amber" and "Folgers" are among the varieties recommended by the department, which is prepared to supply inquirers with full information regarding the cultivation of this profitable plant.

Lady Victory Lays Lavishly.

Poultry specialists of the United States Department of Agriculture practice as well as preach. Their recommendations to poultrymen are based on actual experience. At the department's experiment farm at Beltsville, Md., is a flock of more than 6,000 birds whose thriving condition and good egg production is evidence of the practicability of the specialists' poultry doctrine. In this immense flock there is one hen—Lady Victory they call her, though officially she is No. 408—who has been exhibited at many poultry shows and has taken many prizes. This is the enviable laying record which she has made: In her pullet year she laid 214 eggs, and in the first five years laid a total of 779 eggs. Lady Victory is now in her sixth year, hale and hearty, and still laying eggs at a good fast clip.

How Food Inspection Helps Business.

If a New York apple grower ships his finest fruit to Pennsylvania and later receives a report that it has arrived in poor condition he either accuses the receiver of dishonesty, or lays the blame to the railroad. An argument ensues; time and money are lost.

But if the shipper had demanded a Government inspection of the shipment as a matter of course, he would know beyond the shadow of a doubt the precise condition in which his apples were received.

An increasing number of shippers and buyers are protecting themselves by the use of this service. Only recently an exporter stated that because of having a Government inspection of his export produce his business had grown considerably, for his clients in foreign markets now have prima facie evidence attesting the condition of the fruit before it is loaded on the boat, and are literally deluging him with orders.

The Food Products Inspection Service rendered by the Bureau of Markets, United States Department of Agriculture, is of inestimable value in facilitating the distribution of the products covered, in hastening the release of cars, in forestalling deterioration and waste on account of delays resulting from disputes as to the condition of fruits and vegetables, and in preventing questionable trade practices.

Full information can be had regarding the service by writing the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

Army Worm Threatens Trouble.

In the long battle against insect enemies, the Bureau of Entomology, United States Department of Agriculture, serves as the farmer's "listening post" to give due warning of an impending raid from the enemy. An outbreak of the true army worm has been detected in southern Illinois, and also in southern Missouri, and the scientists are making every effort to give information upon the control of this pest. It is expected that the worm will appear in the sections lying north and northeast of the area infested at present. Probably this will occur within three or four weeks, and farmers are urged to be ready with their defense.

Just what this defense should consist of is fully described in Farmer's Bulletin 731, which the department will send free upon request, to any interested person. Briefly, the control of the pest is effected by means of poisoned baits, poisoned sprays upon crops not intended to be used as forage, and by the construction of ditches and traps where the masses of caterpillars can be caught and crushed with a log drag.

For the next three months the fields of growing grass and grain must be watched carefully and, when the worm is discovered, the attack should be pressed with the utmost vigor to prevent the pest from fortifying his position. Once intrenched, the army worm will claim a large slice of farm profits for his indemnity—millions of dollars have passed down the greedy maw of the army worm in the past 30 years.

The true army worm should not be confused with the "overflow worm," the "fall army worm," or the "grass worm," say the Federal entomologists. The genuine article is a nearly naked, smooth, striped caterpillar about 1½ inches long. His greenish body is marked with three

dark stripes which run, one down each side and one down the back, for the length of the body. The head is greenish brown, speckled with black.

The army worm operates in masses, and from this characteristic he derives his name. When large numbers of them are at work in a field the champing sound of their moving jaws can be plainly heard as they devour every blade in sight.

Blueberries on "Worthless" Land.

Luscious blueberries—many of which are three-fourths of an inch in diameter—that sell for $10 a bushel! Such is the product secured by a New Jersey grower, whose principal business has been growing cranberries but who more recently has taken up the cultivation of blueberries. At present he has 20 acres which he has planted, in part, with carefully selected wild blueberry stock and, in part, with hybrids furnished by the Bureau of Plant Industry of the United States Department of Agriculture. Not only are the berries on this track of very high quality but the yield is prolific, the older plants producing at the rate of nearly 100 bushels to the acre. The plantation is situated at Whitesbog, near Browns Mills.

The success of this grower is but one instance of what is being done commercially by men who are utilizing the information supplied by the Department of Agriculture scientists. The latter have made a study of blueberry culture for several years and are able to furnish data regarding the best varieties and the most suitable soils. Of particular significance is the fact that blueberries thrive best on peat and sand soils, so acid as to be considered worthless for ordinary agriculture. Thus through blueberry culture it is possible to utilize many tracts which have been regarded as especially hard and unpromising.

Women Cull Poultry Slackers.

In Missouri last year, 73,765 birds were eliminated from 1,593 flocks which were culled under the supervision of the home demonstration agents sent out by the United States Department of Agriculture and the State agricultural college. This resulted in a saving of approximately $50,161 to their owners.

In another State, 486 local leaders were trained, with the result that 717,478 birds were culled. Of this number, 274,399 were found to be nonproductive.

About 81 per cent of all the poultry in the country is cared for by women. For that reason special attention is given to poultry by the home clubs supervised by the Department of Agriculture, and the State colleges, and farm women are taught best methods of poultry selection, breeding, raising, feeding, housing, culling, canning surplus birds for home use, preservation of eggs, and cooperative selling of poultry products.

Lack of proper culling thus far has proved to be, in the majority of cases, the principal reason why a flock is not profitable. Forty per cent of the hens in the average farm flock to-day are nonproductive, and should be sold or eaten. It costs about $2 a year to feed each hen. If she does not produce more than that amount in eggs she is unprofitable.

Tentative Grades for Sweet Potatoes Revised to Meet Wider Requirements

After an investigation in producing areas and at marketing centers the Bureau of Markets, United States Department of Agriculture, in April, 1918, proposed tentative grades for sweet potatoes. Since that time the practical application of these grades has been watched closely, and it has been noted that the use of some of them has given general satisfaction to growers and dealers alike.

But in order to meet the requirements of everyone, and in the hope of stabilizing the marketing of the sweet potato crops, the Bureau of Markets has made some changes in the specifications already proposed and now recommends the use of U. S. Grades No. 1, No. 1 medium, No. 1 long, No. 2, Jumbo, and No. 3 to supersede the tentative grades.

Requirements for Grade No. 1.

U. S. Grade No. 1 consists of sound sweet potatoes of similar varietal characteristics which are practically free from dirt or other foreign matter, frost injury, decay, bruises, cuts, scars, cracks and damage cause by heat, disease, insects (including weevils) or by mechanical or other causes. Each sweet potato shall be not less than 1¾ inches nor more than 3½ inches in diameter, and not less than 4 inches nor more than 10 inches in length (unless the diameter is 2¼ inches or more). To allow for variation incident to commercial grading and handling, 5 per cent, by weight, of any lot need not meet the size requirements, and, in addition, 6 per cent, by weight, may be below the quality requirements of the grade.

Any lot where the diameter is not less than 1½ inches and which contains more than 5 per cent, by weight, of sweet potatoes below 1¾ inches in length, but which otherwise meets the requirements of U. S. Grade No. 1 shall be designated as U. S. Grade No. 1 medium.

Any lot where the length is not less than 6 inches nor more than 12 inches and which contains more than 5 per cent, by weight, of potatoes over 10 inches in length, but which otherwise meets the requirements of U. S. Grade No. 1 shall be designated as U. S. Grade No. 1 long.

Other Grades Described.

U. S. Grade No. 2 consists of sweet potatoes of similar varietal characteristics, not meeting the requirements of the foregoing grades, but which are free from serious damage caused by the agencies enumerated in the specifications for U. S. Grade No. 1 (except weevils), and which are not less than 1½ inches nor more than 3½ inches in diameter. To allow for variations incident to commercial grading and handling, 5 per cent, by weight, of any lot may not meet the requirements as to diameter, and, in addition, 6 per cent, by weight, may be below the other requirements for this grade.

The quality requirements for U. S. Jumbo Grade are the same as those for U. S. Grade No. 2, but each sweet potato must be not less than 3½ inches in diameter. Five per cent, by weight, may be less than 3½ inches in diameter, and, in addition, 6 per cent, by weight, may be below the remaining requirements of this grade to allow for variations incident to commercial grading and handling.

U. S. Grade No. 3 consists of sweet potatoes not meeting the requirements of any of the foregoing grades.

Complete information concerning sweet potato grades can be had by requesting the Bureau of Markets, United States Department of Agriculture, Washington, D. C., for Department Circular 99.

To Fight Insect With Its Parasite.

The agents of the United States Department of Agriculture sent to Cuba for the purpose of gathering parasites of the sugar-cane moth borer are accomplishing good results. The parasites are now being received at Brownsville, Tex., for distribution in the cane fields of that region, where sugar cane matures earlier than it does in the Louisiana fields. A little later consignments of parasites will be sent to the Louisiana fields and to other places where sugar cane is growing.

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Lack of Money Will Force Drastic Curtailment of Department's Work

Secretary Meredith Says Failure to Give Needed Funds Was Not Real Economy.

Efforts of Department to Reduce Its Work to Limits Set By Congress Bring Many Inquiries.

The Department of Agriculture is receiving numerous inquiries from all parts of the country regarding the curtailment or discontinuance of various lines of work on account of reduced appropriations. These inquiries are coming from those interested in the activities affected and arise out of the action that is necessarily being taken by the department to bring its expenditures next year within the limits set by Congress. In all these cases the department is urged to make some arrangement for the continuation of the particular lines of work involved. In reply to these inquiries, and in order to make clear that many varied and widely distributed projects and activities are necessarily affected by the reduction in funds, Edwin T. Meredith, Secretary of Agriculture, has made the following statement:

Estimates Cut $6,000,000.

"The Agricultural appropriation bill for the fiscal year beginning July 1, 1920, as recently passed by Congress, carries approximately $6,000,000 less than the estimates made by the department as to its needs and $2,185,000 less than the amount provided in the appropriation act for the current fiscal year. Although the effect of reduced funds on the work of the department was laid fully before Congress while the bill was under consideration, this serious reduction has been made apparently on the ground of economy. I do not believe it is real economy, however, because it will certainly hamper the department in its efforts to aid the farmers of the country in doing their work of feeding and clothing the people, and will also handicap the department in administering some of the important regulatory laws intrusted to it for enforcement. The projects or activities to be curtailed or discontinued, in so far as the department has any discretion in the matter, have been determined only after a very thorough and careful review of the whole situation, taking all the factors into consideration.

"There is a reduction of $304,000 in the appropriation for the Bureau of Animal Industry as a whole, and this will affect many important lines of work. For example, we have this year $446,865 for field work in connection with the eradication of hog cholera. The amount appropriated for next year is only $192,200. There was a time when the annual losses of hogs from this disease amounted to 144 head to the thousand. Since the eradication campaign was launched, however, the losses have never exceeded 67, and they have been as low as 42 per thousand. It is perhaps not too much to say that the eradication work is saving farmers of the United States $40,000,000 a year.

(*Continued on page 9.*)

HAMPERING EFFORTS TO AID FARMERS NOT REAL ECONOMY

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REPORT SHOWS BIG INCREASE IN ROAD-BUILDING PROJECTS

States Plan to Construct a Total of 27,796 Miles of Good Roadway.

Work Already in Progress on Projects Totaling 13,540 Miles—Half of Cost Will Be Borne by Federal Government.

The remarkable rate at which the number of Federal-aid road-building projects has increased since the war is shown in a summary relating to all such work from September 30, 1916, to April 30, 1920, which has been prepared by the Bureau of Public Roads, United States Department of Agriculture. On the latter date the States had filed with the bureau 2,885 project statements, of which 2,790 had been approved, representing 27,796 miles of highway. The totals on April 30, 1919, were little more than one-third these amounts. Up to May 1 of this year 1,974 projects had proceeded to the stage at which plans, specifications, and estimates had been delivered to the Bureau of Public Roads. The plans, specifications, and estimates of 1,827 of these had been recommended for approval, representing 13,845 miles.

Construction Work in Progress.

Project agreements had actually been executed and construction work was in progress on 1,569 projects, totaling 11,987 miles. In addition, work had been begun on about 100 projects for which agreements had not actually been signed, thus expediting the progress of the work and bringing the total mileage under construction up to 13,540. The summary shows that a great reduction has been made in the time required for preliminary work before actual construction is begun.

On the average the States have submitted project statements for nearly 95 per cent of their respective allotments and have entered into agreement to construct highways which call for about one-half of their Federal-aid money. The projects actually completed and paid for

are comparatively few, but they are materially exceeded in number by those which are practically completed. California, Delaware, Illinois, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Utah, Washington, West Virginia, and Wyoming have each submitted approved project statements for all or nearly all of their allotments.

South Likes Winter Gardens—Green Vegetables Year 'Round

More than 25,000 girls in the 15 Southern States planted winter gardens last year, and 4,949 more had perennial, or permanent, gardens, according to reports compiled by the United States Department of Agriculture. The winter garden bridges the gap in the seasons, enabling the southern family to have green vegetables the year round, while many indirect benefits result from the perennial garden in addition to its direct uses. The perennial gardens generally contain some fruit or nut trees, grape vines, berries, or other small fruits, selected according to climatic conditions.

The home demonstration agents, who are supervised by the United States Department of Agriculture and the State colleges, encourage the girls, who are doing advanced work in the garden clubs, to establish permanent gardens, because they realize that such gardens serve as memorials to club girls who go away to high school or college and also serve to draw the girls back to the farmsteads. A perennial garden also provides a means to earn money, and enables many girls to school to pay at least part of their own expenses.

Plantings in these perennial gardens are generally begun not later than spring of the second year of club work, so that by the time a club member reaches her third or fourth year's work her garden is in good bearing.

RECEIVES ITS FIRST CARLOAD OF AMERICAN-GROWN DASHEEN

The first carload of American-grown dasheens recently arrived at New York. They were grown on the east coast of Florida. Owing to the limited quantities shipped to market at present the vegetable, which is recommended as a substitute for the potato in locations where that crop can not be grown, is high in price, selling for as much as 15 cents a pound in New York within the past week.

The Trinidad dasheen, which is a particularly fine flavored variety of the taro, is one of 46,000 foreign plants introduced into the United States by the Department of Agriculture. It was brought here in the belief that it would yield the South a tuber crop which could be used to supplement the potato. It contains 50 per cent more starch and 50 per cent more protein than the potato.

Dasheens can not be grown in the North, but they are finding favor among consumers in that section of the country. Dealers in Washington and New York report that they are having difficulty in meeting the demand for the new tuber, even at the high prices.

Alaska presents great opportunities for development through its natural resources in timber, fisheries, stock raising, and agriculture, say specialists of the Department of Agriculture. The cod fisheries are virgin fields, more extensive than any other banks on the globe.

Naval Stores Production Shows Increase For 1919, While Stocks on Hand Fall Off.

The total production of gum spirits of turpentine and gum rosin during the season 1919, as compiled by the Bureau of Chemistry, United States Department of Agriculture, from individual reports from producers, was 361,304 casks of turpentine and 1,216,338 round barrels of rosin (approximately 500 pounds gross weight). There was on hand at the stills on February 2, 1920, a total of 28,394 casks of turpentine and 138,535 barrels of rosin.

A preliminary report issued as of August 1, 1919, indicated a total production for 1919 of 337,734 casks of turpentine and 1,038,275 barrels of rosin. The actual total production for the season, therefore, has exceeded the estimate of August 1 by approximately 23,000 casks of turpentine and 55,000 barrels of rosin.

In addition, there was produced during 1919 a total of 30,889 casks of wood turpentine and 159,271 round barrels of wood rosin and rosin reclaimed from dross and other still wastes. The stock of these products on hand at the plants producing them on January 1, 1920, were 1,764 casks of turpentine and 22,593 round barrels of rosin.

The stocks of naval stores at the ports and in possession of the principal dealers and jobbers throughout the country on February 2, 1920, as reported by the Bureau of Chemistry on March 8, 1920, were 54,174 casks of turpentine and 263,946 round barrels of rosin.

On February 2, 1920, the stocks in the possession of the consuming industries, among which are included those producing paper, paper size, paint and varnish, soap, greases and lubricants, shoe polish, rosin oil and pitch, printing ink, sealing wax and insulating materials, matches and woodenware, fly paper, linoleum, automobiles, buggies and wagons, iron and steel castings, and foundry supplies, and shipyards amounted to 26,340 casks of turpentine and 290,045 barrels of rosin.

A comparison between the information given above and that given in similar reports for 1918 may best be obtained from the following tables. All figures for turpentine are in terms of casks, averaging 50 gallons, and those for rosin are in terms of round barrels, averaging approximately 500 pounds gross:

Production and exports.

Production and exports.	1918	1919
Production gum turpentine, casks	340,280	361,304
Increase in 1919, 6.2 per cent, casks		21,024
Production gum rosin...barrels	1,114,166	1,216,338
Increase in 1919, 9.1 per cent, barrels		102,172
Production wood turpentine, casks	32,419	30,889
Decrease in 1919.....casks		1,530
Production wood and reclaimed rosin.....barrels	123,352	159,271
Increase in 1919.....do		35,919
Exports of turpentine.....casks	74,342	214,194
Increase in 1919.....do		139,852
Exports of rosin.....barrels	432,793	689,715
Increase in 1919.....do		256,922

Stocks at end of producing season.

Stocks.	Mar. 31, 1919.	Feb. 2, 1920.
Gum turpentine at stills,[1] casks	40,401 (3/1/19)	28,394
Decrease (11 months), casks		12,007
Gum rosin at stills,[1] barrels	174,918 (3/1/19)	138,535
Decrease (11 months), barrels		36,383
Turpentine at ports and on yards.....casks	134,534	54,174
Decrease (10 months), casks		80,360
Rosin at ports and on yards.....barrels	432,381	263,946
Decrease (10 months), barrels		168,435
Turpentine in hands of consumers.....casks	27,052	26,340
Increase.....do		712
Rosin in hands of consumers.....barrels	197,208	290,045
Increase.....do		92,837

[1] The figures for stocks of gum turpentine and rosin at the stills at the close of the 1918 season are for Mar. 1, 1919, instead of Mar. 31, 1919.

SECRETARY MEREDITH WRITES AGRICULTURE ADVERTISEMENT

Tells Ad Club Men of the Importance of Farming in Their Business.

Says He Advertises a Service Department of the Government Which Deals With an $80,000,000,000 Enterprise.

E. T. Meredith, Secretary of Agriculture, made the following address before the convention of the Associated Advertising Clubs of the World in Indianapolis June 8:

"This is an advertising convention, and I suppose that nobody has the right to come here and talk about anything except advertising. Therefore I am going to write an advertisement with you as my public.

"I am going to follow the orthodox tenets of advertising—that the advertisement must attract attention, must interest, and so forth.

"When I tell you that I am advertising a service department of the United States Government which deals with an $80,000,000,000 enterprise, with a yearly business of $25,000,000,000, I believe I will get your attention.

"When I tell you that this tremendous enterprise, by all of its output, is creating business for you, if you are disposed to avail yourselves of the opportunity, I believe you will feel compelled to take an active interest in it and support it in every way.

"The purpose of this advertisement is to sell you the United States Department of Agriculture.

"The particular title given to this advertisement by the program committee in the subject assigned me is 'The Advertising Man's Interest in the Department of Agriculture.' I have the task, therefore, of pointing out to you the points of contact between the average farmer and the every-day run of advertising in the newspapers, the farm press, the magazines.

Farm Products in Advertising.

"I do not believe it would be an overstatement of the fact to say that the products of the farm, raw or manufactured, make a larger contribution to advertising space than all other industries and institutions. I am perfectly well aware that this is far from the popular conception of farm advertising. When most people think of what the farm contributes to advertising, they make a mental picture of a man with a few bushels of apples to sell, or a load of hay, or a cow and calf, and they see, as the result of it, a five-line local in some little weekly paper.

"Take the one item of cereals—breakfast foods and the like. Rolled oats, puffed wheat, corn flakes, puffed rice, macaroni, and 50 others I can not remember just now but which furnish copy for you advertising men every day in the year. If it were not for agriculture, there would be no wheat to puff, no corn to flake, no oats to roll.

"You carry a great deal of copy and a lot of pretty pictures of streaked bacon—superior breakfast bacons from almost as many plants as are engaged in the meat-packing business. And there are sugar-cured hams, chipped beef, sausages, and all sorts of meat products. There are pickles and preserves, jellies and jams and baked beans, catsups and sauces, oranges, cotton and wool clothing, even automobile tires, shoes, leather, sugar, candies. What's the use—to go further would leave you with the impression that there is nothing advertised except the products which come from the farm, and the vigilance committee would be down upon me if I put that in my copy.

Macaroni Wheat—A Find.

"What has the United States Department of Agriculture to do with these things? Well, pick out one item in the list. Say we take macaroni. You are advertising that in your publications, in the street cars, on the billboards, everywhere. I will tell you why it was possible for you to sell that space.

"There used to be a great many thousands of acres of semiarid land in the Northwest too dry to grow any grain crop then known to the United States. The Department of Agriculture searched the world for a hardy, drought-enduring wheat. Such a wheat was found. It was brought to the United States, bred up, and developed. We call it Durum wheat, and it is extensively used in making macaroni. We spent about $250,000 introducing the wheat, establishing it, popularizing it with the farmers and getting it grown. The Durum wheat crop now is about 40,000,000 bushels a year. Year after year that crop yields the farmer $50,000,000 or more. There is not one of you here who does not feel the influence directly of that extra production. It affects not only your newspapers but your railroads, your shipping, your banks, and your retail stores.

"It might have been rice. Do you know that during the past 11 years the United States Department of Agriculture has created in California a rice-growing industry, the product of which last year was worth $21,000,000? It is in a region where no rice had ever been grown before and where rice production was thought to be impossible. The first commercial field of rice was planted in the Sacramento Valley in 1912, three years after the Department of Agriculture specialists began their experimentation. Last year 142,000 acres of land in that valley were planted to rice. The product was worth last year, as I have said, $21,000,000. Already there are a dozen rice mills in operation, and 30 canal companies, large and small, are supplying the rice growers with water. The acreage is larger this year than it was last, and the indications are that it will continue to increase from year to year. Do you know what the rice growers in the Sacramento Valley are saying? 'Boston,' they say, 'taught America to know beans. We are going to teach the American people to know rice. It is one of the finest foods in the world, and we are going to demonstrate the fact to the American people.' Do you see how that connects directly and vitally with your business?

"We might have used, as an illustration, neither macaroni nor rice, but any one of a great number of other achievements of the cereal experts of the department. They have accomplished more for this country than I could tell you if I devoted my entire time to discussing our cereal work. There is a great deal more still to be accomplished. The lines of work begun but not yet brought to completion probably bulk larger than those that have been completed. In this connection it will interest you to know that Congress, apparently on the ground of 'economy,' has reduced by $80,000 the money available for this tremendously important work.

Better Cotton for Tires.

"There was a time when 144 hogs out of every 1,000 died of cholera every year. During the past several years annual losses have not exceeded 66 and have been as low as 42 per 1,000. That reduction is due principally to the fact that three doctors, scientists in the Department of Agriculture, discovered the cause of hog cholera and found an effective method of preventing it. That was in 1913. Our specialists estimate that the application of the antihog-cholera serum thus discovered is saving the farmers of the United States $40,000,000 a year in hogs that otherwise would die of cholera. When those hogs—$40,000,000 worth on the hoof—are reduced to hams and bacon and sausage, you have an idea of what it is worth to you in the advertising that puts the products before the people who eat them.

"Take automobile tires: The Department of Agriculture is doing a great

deal of work toward developing adequate supplies of long-staple cotton used in their manufacture. It brought from Egypt a cotton called Egyptian cotton, but no Egyptian would recognize it today. By careful breeding and selection the specialists have developed a long-staple cotton, probably the best cotton in the world, and one that adds greatly to the length and life of every fabric made from it. It is becoming indispensable in the manufacture of good automobile tires. Twenty million dollars' worth of it was produced last year in the desert country of the Southwest where practically nothing grew before, and the production will probably increase greatly this year.

"As the American Egyptian cotton industry grows, more and more of it will go into articles other than automobile tires. In no great while considerable quantities of clothing will be manufactured from Egyptian cotton. Do you see any possibilities of an advertising campaign in that? Airplane wings used to be made exclusively of linen. Nobody believed that any other material could be used. But during the war Germany managed to get control of practically the entire world output of flax, from which linen is made. The War Department appealed to our cotton-standards specialists for a substitute. Those specialists succeeded in making a satisfactory substitute from long-staple cotton. Before the war ended it was on the airplanes not only of the American Army but of most of the Allies. It continues in use on the peace planes. When the airplane comes into general use, do you see any advertising possibilities along that line?

A New Orange to Sell.

"How many of you are interested in advertising California oranges? Among you you advertised the 13,000,000 boxes of California-grown navel oranges that were distributed among the people of this country last year. Do you know how there came to be any navel oranges grown in California? The Department of Agriculture obtained the navel orange from Brazil. One of the parent trees of the California industry is still growing in the greenhouse on the grounds of the department at Washington. Our specialists introduced it into California, supervised the establishment of the industry, and gave you a business that is now furnishing advertising 'copy' to market 13,000,000 boxes of navel oranges.

"That is just one thing out of some hundreds that the Department of Agriculture does for the fruits you advertise. Here, briefly, is another. Losses caused by improper packing and loading of fruits used to run as high as 40 or 50 per cent on the carload. Our specialists discovered radical defects in methods of picking oranges, then found a remedy for it and got it applied. They developed proper methods of packing oranges in the case and loading cases into railroad cars. The total result is a remarkable reduction in losses and, generally, a much more attractive quality of fruit when it reaches the consumer.

Figs and Dates to Advertise.

"I could tell you of a great deal of other fruit advertising that the Department of Agriculture has developed for you. It introduced, for instance, the Smyrna fig. At first the trees would not bear fruit. The specialists found after long observation that certain small wasps were the fertilizing agents. The wasps were brought to this country, and still the fig trees were barren. Then the specialists discovered that beside the Smyrna fig the wasps required the Capri fig to breed in. The Capri fig was brought and planted alongside the Smyrna fig. With the wasp and the Capri fig and the Smyrna fig together it is all settled, and soon America will be producing its own supply of high-quality figs. You know the part advertising will have to do in introducing that new, delicious, high-quality product to the American people.

"You will have also an American-grown date to introduce to the people of the United States. It is going to be a better date than can be found anywhere else in the world. That industry, too, has been established in California as a result of work by the Department of Agriculture.

"Department specialists are engaged now upon the work of helping to establish currant-grape vineyards in the wine-grape regions of California. We have been importing our currants from Greece. When we grow them at home, it will be the task of the advertising man to make the home people acquainted with the home-grown product.

Finds Uses for Corn Cobs.

"Let me tell you of another promising piece of work. During the past few months chemists in the Department of Agriculture have discovered that the entire content of corn cobs can be converted into highly useful products. Up to this time the corn cob has been an absolute waste—and every field of corn produces as many bushels of cobs as it does of grain. Commercial plants are now being equipped to manufacture half a dozen products from them.

"One of these products is an adhesive of exceptionally high quality—said to be better for a number of important uses than any adhesive previously known. Another is cellulose, suitable for use in the manufacture of dynamite and various other things. Another product that the plants will turn out from cobs is acetate of lime, from which acetic acid is made. And, after all these things had been demonstrated, our chemists discovered a very valuable by-product—furfural. Up to this time furfural has been so rare that it has sold as high as $20 a pound. Every ton of corn cobs will yield about 30 pounds of furfural as a by-product, and our specialists estimate that it can be manufactured in this way for less than 20 cents a pound. Furfural is what the chemists call a basic intermediary in dyes. That means that you may make about as many kinds of dye out of furfural as a good cook can make kinds of things to eat out of flour. They have shown me at least a dozen different shades of cloth dyed with furfural. It is highly useful, too, in the manufacture of many paints and lacquers and in the making of bakolite, the substance used in pipe stems and other articles. In addition to all that, furfural is such an excellent insecticide that it has been used to a considerable extent for that purpose, even though the price was $20 a pound.

"I wish I could tell you all the things the department has done toward increasing production, establishing new lines of industry, utilizing products that formerly went to waste, and developing better markets for those that could not be consumed where they were grown. Here is an illustration of what may result from developing uses for waste products. A few years ago in California cull lemons and oranges—the kind that were not quite attractive enough to be sold as fresh fruit—were going to waste in tremendous quantities. The department established a citrus by-products laboratory out there. To-day more than 20 manufacturing concerns are engaged in producing orange by-products. Their output last year consisted of approximately 6,000,000 pounds of marmalade, jellies, and candied peel. In addition to that, a large number of lemon by-products plants produced 1,500,000 pounds of citric acid, more than 500,000 pounds of citrate of lime, and over 50,000 pounds of lemon oil.

"Not only has the department created new crops for many thousands of farmers, but it has found the means, in many instances, for substituting something just as good or better when adverse conditions drove an old crop out of existence. You remember that Sea Island cotton was, for a great many years, the most sought-after long staple in the United States.

"Many farmers along the south Atlantic coast, and a number of manufactur-

ing plants elsewhere through the country, were dependent on sea-island cotton for their prosperity. When the boll weevil reached the south Atlantic coast it promptly made impossible the production of sea-island cotton. The old staple has practically passed out of existence. But the Department of Agriculture had foreseen that calamity and had prepared for it. A young man, one of our scientific plant breeders, had discovered several years before in a cotton field in Texas some plants that promised a product comparable to sea island. He undertook to produce a new variety. He died before the work was finished, but when the boll weevil destroyed sea-island cotton the Department of Agriculture was ready for this new variety—named Meade cotton in honor of the young man who made the discovery—to take the place of the old variety. It is certainly as good and, many are inclined to believe, better than sea island was.

Naturalized Plants to Advertise

"There are more than 10,000 naturalized plant citizens of the United States, brought from every quarter of the world by the plant explorers of the Department of Agriculture. Among them are the grain sorghums, now the principal crop in the arid Southwest, where Indian corn could not be grown satisfactorily. They produced 125,000,000 bushels of grain last year. Durum wheat, of which I have spoken, is also in that list. Other important introduced crops are soy beans, velvet beans, hardy alfalfas, purple vetch, several important hay and pasture grasses, Japanese sugar cane, and a list of fruits too long to enumerate.

"The cattle tick, an insect that causes splenetic fever of cattle, formerly infested all the country from Texas to the Atlantic coast and from Virginia to the Gulf. It seriously reduced the production both of beef and of dairy products. It inflicted serious injury to the hides of cattle and impaired the quality of the leather produced. The department, in cooperation with the States, has eradicated the tick from 70 per cent of the country formerly occupied, and if the program is carried out complete eradication will be attained at the end of 1923.

"Black stem rust of wheat has been a terrible menace to wheat farmers. It would appear—nobody knew how or why—and frequently would render a promising field of wheat practically worthless. It has caused losses as high as 200,000,000 bushels of wheat in a single year. Then the discovery was made that black stem rust can not exist independently of the common barberry bush. The Department of Agriculture, in cooperation with the wheat States, has carried on a campaign of barberry eradication, as the result of which millions of dollars worth of wheat will be saved every year.

"All these things relate primarily to agriculture, but they benefit every other kind of business. In the first place, they increase the buying power of the people. The raw products bring into existence manufacturing plants for making them into finished articles. The railroads get increased business, both by hauling the raw materials to the factories and by distributing the manufactured products to dealers. Mercantile business, wholesale and retail, is increased. Everybody concerned, from the farmer who grows the product to the merchant who sells it to the consumer, becomes a better patron of the bank—a larger depositor or a better and safer borrower of money for use in his business. And newspapers and advertising men, serving all these lines of business and industry, receive their share of the increased business.

"Do you not think, therefore, that these achievements of the Department of Agriculture mean smething to you?

Those Who Complain.

"I have indicated a few things that the Department of Agriculture is doing for advertising. What is advertising doing for the Department of Agriculture? The department is getting a good deal of publicity; much of it is of the right kind; some of it is of the wrong kind. The department gets the wrong kind of publicity from those with whom it interferes. They rush into print or complain personally to friends, causing doubt and distrust. Those benefited in many cases do not know or do not realize whence the help comes and in other cases take it for granted and do not tell of it. If the great mass of people who are benefited by the work of the department thoroughly understood what they are receiving from it, the complaints of the few whose schemes are thwarted by the department would not carry very far. The man who wants to mix red pepper with cedar sawdust or something worse and sell it as red pepper is prevented from doing so by the department. He does not like it—his profits have been interfered with. Adulterators and misbranders generally have no use for the department. The canner who bought long cranberry beans for $7 a hundredweight and put them out as red kidney beans which were selling for $14 a hundredweight—he has a reason for criticizing the department. The reason is $7 lost profit on every hundred pounds of his product. The short-weight artist, the man who tries to use a bottle with a big outside and a very small hollow—all those who try to take advantage of lack of knowledge on the part of the consumer, are sworn enemies of the department and its work. And they are able to make a noise out of all proportion to their numbers. There are not many of them ,either actually or comparatively.

"The great majority of men in the food business commend the work of the department, not only because it safeguards the public but also because it insists on correct labeling, thus aiding the honest manufacturer. All honest men desire to compete fairly in the business upon which they are engaged, and the food-regulation work of the department assists them in doing it. Without it the unscrupulous man would be able frequently to bring about a bad trade practice that would be generally followed, though the great majority of men in the trade would deplore it. Take the matter of the branding of the cheap long cranberry bean as the excellent red kidney bean. The manufacturer who put out the misbranded product could sell it to the retailer at a much lower price than the honest manufacturer could sell the genuine product. The honest canner, therefore, either is driven out of business or is tempted to follow the practice of his dishonest competitor. Many of the best things that have been done to correct such practices were accomplished through the cooperation and frequently upon the initiative of men in the trade.

Some Poor Advertising.

"Other phases of department work give offense to a few selfish or dishonest men. The few seedsmen who now and then try to put out fake seeds, the market man whose schemes are interfered with by the crop reports of the department, the contractor who would like to build a road that the community does not need and for which approval can not be secured under the Federal aid road system—individuals of all these classes have a great deal to say regarding the 'unjust' treatment they have received from the Government. But before taking them too seriously look out for what is back of their words.

"I merely want to say to you, gentlemen, that it is mighty poor advertising for your Government, your country, and yourselves to repeat, no matter how thoughtlessly, complaints of this sort.

"Notwithstanding the service which the Department of Agriculture is rendering to the people of the Nation, notwithstanding the fact that it secures a return of 1,000 per cent or more on the money invested in it, as indicated by some of the illustrations I have given, Congress has reduced by $2,185,000 the appropriation for the work of the De-

partment of Agriculture during the year beginning next July. The chiefs of bureaus have enumerated for me 60 important lines of work that will have to be abandoned or curtailed as the result of that reduction. I am going to name just a few of them.

Must Curtail Hog Cholera Eradication.

"Hog-cholera eradication work must be abandoned in several States, in order that such money as we have may be concentrated in the States where the greatest number of hogs are produced. Even in these States the number of hog-cholera specialists will have to be reduced from six or eight men to two or three and in some cases to one.

"The department will be obliged to withdraw from financial support of cooperative cow-testing association work in Ohio, Indiana, Iowa, Minnesota, Nebraska, Pennsylvania, West Virginia, Rhode Island, Connecticut, and New Jersey.

"We will have to abandon dairy and live-stock work in the areas that have been freed of the cattle tick in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas.

"We will have to close field stations engaged in cereal improvement work in North Carolina, Tennessee, Texas, Wyoming, South Dakota, Utah, Oregon, and Washington.

"We will have to discontinue or curtail our work on cereal diseases at stations in New York, Michigan, Alabama, California, Connecticut, Illinois, Indiana, Iowa, Kansas, Louisiana, Minnesota, New Jersey, North Dakota, Pennsylvania, Virginia, and Wisconsin.

"The other lines of work going to make up the list of 60 are just as important in their fields as those I have mentioned.

"I have told you a few simple facts. You know the application of them as well as I do. The workers in the Department of Agriculture—as faithful, as efficient, and as hardworking a body of men and women as exists anywhere in the world—are not adequately equipped to do their work in the most effective way for the benefit of agriculture and the country as a whole. Some of them are taking positions in private employment, where they can earn a great deal more money. A majority of them, however, held to their work by pure love of it, will go on achieving the kind of results that I have been telling you about.

"I have pointed out some of the things that these men and women have done, from which the whole country has benefited. I have told you how, now, they are not equipped as they should be for the work still before them. I believe that the Department of Agriculture has suffered more seriously than is generally realized. But I do not believe that we are going to permit the situation to become permanent. What has been lost must be regained, and the foundations builded stronger than they were before.

"Does not this matter appeal to your interest as good citizens and as sound business men? May we not have the satisfaction of knowing that the advertising men of America, with the energy and the intelligence that is characteristic of them, are doing all in their power to secure for the Department of Agriculture a full opportunity to carry on effectively the work it has so well begun?"

REPORTS DECREASE IN CATTLE AND HOGS IN UNITED STATES

A falling off in the numbers of cattle and hogs in the United States occurred during the first four months of this year, as compared with the like period last year, according to reports of special livestock reporters of the Bureau of Crop Estimates, United States Department of Agriculture.

In the case of hogs, the births during January, February, March, and April were about 10 per cent fewer than in the same months last year. The marketings have fallen off about 15 per cent; the farm slaughter was about the same in both seasons; but the deaths on farms this year are over 40 per cent heavier than last year to May 1. Taking into consideration both the births and the deaths (from all causes), it appears that there has been a relative reduction of about 5 per cent during the first four months of this year as compared with the trend during the first four months of last year.

The births of calves from January 1 to May 1 were about 22 per cent fewer this year than last year. The net disposition of cattle by marketings, farm slaughter, and deaths was about 9 per cent greater than last year; it appears that there has been a relative reduction of about 6 per cent in total number of cattle as compared with last year during the four months January 1 to May 1.

There are two kinds of dollars—one that is never worth more than a hundred cents, and one that grows in value. When you put your money in War-Savings Stamps you change your hundred-cent dollars into the kind that grow.

HOME CANNING NECESSARY THIS YEAR TO BEAT OLD H. C. OF L.

No Assurance, Say Government Experts, That Canneries Will Be Able to Meet Demand.

High Price of Sugar Is No Reason for Canning Less Fruit at Home This Year—Some Fruits Require None.

Home canning—of utmost importance during the war—will be just as important this year, according to present indications as they are viewed by the United States Department of Agriculture. The shortage of labor on the farms makes it necessary for the canneries to pay high prices for the commodities that will be canned later in the season. Labor in the canning factories is expensive and difficult to obtain. Everything, from cans to cartage costs, has increased in price, and transportation is slow and more expensive than it was in war times. All this increase must be paid by the ultimate consumer; and there is not even assurance that there will be enough canned products to go around. The solution is home canning.

Thick Sirup Not Necessary.

That sugar is higher in price than it has been hitherto is advanced by some as a reason for canning either less fruit or nothing but vegetables; but unless one intends to give up sweets altogether there seems no good reason for not using canned fruit on account of high-priced sugar. There are few desserts that do not take from one-half to one cup of sugar, and no dessert is more healthful than fruit. It is not necessary to use such thick sirup as was used in the days of plenty. A 10 per cent sirup made of 1 part sugar and 9 parts water will make palatable any of the acid fruits. Such fruits as apples, pineapples, and the like can be canned without sugar. In fact, ordinary glucose or corn sirup may be substituted for sugar in making the sirup. A palatable sirup is made by mixing ½ cup sugar, 1 cup glucose, and 8 cups of water.

Not So Expensive After All.

It requires about 7 ounces of sugar for a pint jar. One cup of sugar will make 10 cups of sirup. A pound of sugar will make 20 cups. This last amount will be sufficient for 20 pints of canned fruit. Where the 10 per cent sirup is used the cost of the sugar to can a pint jar is 1½ cents with sugar at 30 cents a pound. It is not so expensive after all.

Food-Poisoning Cases Reveal Lack of Care— A Simple Matter to Tell Bad Canned Stuff

Canned food, free from gas or swell, from disintegration, and from bad odors, has proved safe in all the experiments conducted by the Bureau of Chemistry, United States Department of Agriculture. Spoiled canned food is not safe, because the consumer can not separate harmless decomposition from poisonous decomposition. No canning scheme is perfect enough to prevent the loss of an occasional can. Such a can should be destroyed, not eaten.

In poisoning cases investigated by the Bureau of Chemistry, it has been repeatedly shown that the food consumed was spoiled and that some of those who handled it recognized its condition. As long as people take a chance in serving food known to be unsound, deaths from poisoning will occasionally occur.

With both commercial and home-canned food, the final responsibility of determining whether it is in a fit state for human consumption rests with the person who opens the can. The only difference is that the commercial product is tested by the wholesaler, jobber, and retailer before it reaches the consumer, while the home canner is frequently responsible for proper precaution in packing and for inspection of the product.

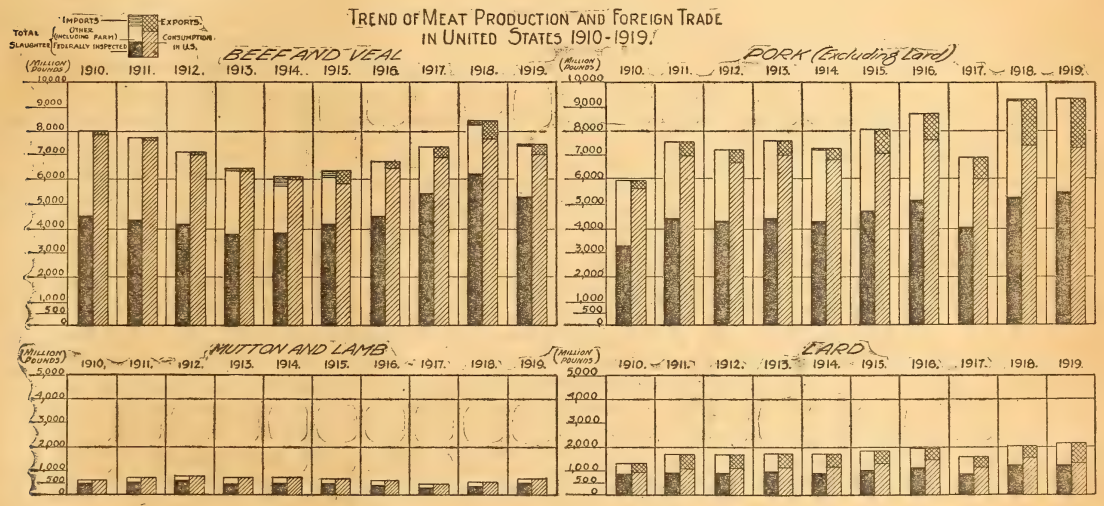
A can, the contents of which is suitable for consumption, when opened should be free from swell or escaping gas. The contents should have the proper color, texture, and odor for the product canned, and should be absolutely free from any foreign or offensive odor. All these things should be noted before the product is tasted.

On the other hand, if the vegetable, fish, meat, or fruit in the can smells and looks wholesome, so far as is now known, there is no danger from its consumption. The home canner, therefore, can go ahead with her canning operations, feeling sure that her family will be safe from food poisoning if she observes these simple precautions.

PARASITES CAUSE SHEEP SCAB.

The mites which cause common sheep scab are small insectlike parasites, the male measuring when fully grown only about one-fiftieth and the female one-fortieth of an inch in length. They may be seen with the naked eye, particularly if they are placed on a dark background. They occur on any portion of the body covered by wool, but are most common where the wool is thickest; they are the sole cause of the disease. Their destruction is followed by recovery, whereas any treatment which does not destroy them fails to cure scab.

PRODUCTION AND FOREIGN TRADE IN MEATS AND LARD IN LAST TEN YEARS.



The above chart, prepared in the Bureau of Animal Industry, represents the trend of the meat situation in the United States during the last 10 years. For purposes of comparison beef and veal are combined, although they are determined separately. Mutton and lamb, however, can not be separated. Pork and lard are given separately so that a comparison is made of meats as handled by dealers.

Each column shows a year's transactions, one side of the column giving the production and the imports, the other side showing the disposal, namely, the consumption and exports. All meats are shown on the same scale, by which it may be seen, for example, how relatively small the production of mutton is compared with beef or pork.

Fuller details, including the yearly figures showing the estimated production, exports, imports, and consumption (total and per capita) of each kind of meat and of all meats combined, also of lard, are given in a series of tables upon which the data in the chart are based.

Copies of the tables, with brief explanatory notes, may be had on application to the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Weekly News Letter

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Edwy B. Reid, Chief

OFFICE OF INFORMATION
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

E. D. BALL, SECRETARY'S NEW AID, IS SCIENTIST AND FARMER

Elmer D. Ball, of the Iowa Agricultural College, has been appointed Assistant Secretary of Agriculture. Mr. Ball entered upon the discharge of his duties June 12.

The new Assistant Secretary combines the qualities of an agricultural scientist and a practical farmer. Born at Athens, Vt., 50 years ago, he went with his parents to Iowa when a small boy, and was brought up on a farm in that State. He owns and operates a farm in Utah.

Since his graduation from the Iowa Agricultural College Mr. Ball has been a teacher in agricultural colleges and an investigator of scientific and agricultural problems. For three years after graduation he was research assistant at the Iowa Experiment Station. In 1898 he became associate professor at the Colorado Agricultural College and remained there for four years. From 1902 to 1907 he was a member of the faculty of the Utah Agricultural College. At the end of that period he took leave of absence and went to the University of Ohio for graduate work, receiving the degree of Ph. D. He then returned to Utah Agricultural College to accept the position of dean of the college and director of the experiment station. He remained in that position until 1916 when he became State entomologist of Wisconsin. Two years later he returned to his alma mater as a member of the faculty and of the experiment station staff, from which position he was called to Washington to become Assistant Secretary of Agriculture.

He is a fellow of the American Association for the Advancement of Science, and of the Entomological Society of America, ex-president of the American Association of Economic Entomologists, and now of the American Genetic Association, and various other scientific societies.

"The Department of Agriculture and the agricultural interests generally are particularly fortunate," said Secretary Meredith, "in securing the services of a man who has such a wide knowledge of the agriculture of the country, and who is so intimately familiar with the problems that the farmers have to solve."

"OF UNTOLD BENEFIT," SAYS FARMER PRAISING FORECASTS

That the farmers of the country find the weekly weather forecasts of immense value, especially during the growing season, is evidenced by a letter of appreciation recently received by the Weather Bureau of the United States Department of Agriculture from an Illinois farmer. He was highly pleased with aid the forecasts had been to him and his neighbors in planting their corn. In part, he wrote:

"These forecasts have been of untold benefit to us this an unusual backward spring, and we feel greatly indebted to you. With this very reliable advanced information you are furnishing us we are able to figure ahead and keep planted right up. For instance, this section began plowing for corn last week. When we received your bulletin predicting rain for Tuesday or Wednesday of this week we got busy with our corn planters, some even turning the face of their calendars to the wall and letting one Sunday get away from them. To make a long story short, when your predicted rain struck us Tuesday noon and is still coming down this (Wednesday) morning, it found over one-third of the Illinois corn crop in the ground ready to be soaked and germinated. Had we not been put wise by your office am confident that not one-sixth would have been planted. While your daily weather reports, made up by your local observer, help out some, they can not be compared with your weekly forecast sent out from Washington. I have watched it quite close since you began this part of the service five or six years ago, and have found it most reliable and dependable."

In addition to the daily weather forecasts published in practically all newspapers, the Weather Bureau issues on Saturday of each week a forecast for the six days beginning the following Monday. These forecasts are made for nine separate districts covering practically the entire United States, and necessarily are less specific than the daily forecasts. They are given wide distribution during the growing season, and the letter quoted records but one instance, among many, in which they have proved of great value to farmers.

BAN TO REMAIN ON CATTLE AND SHEEP FROM AUSTRALIA

The embargo against the importation of Australian cattle and sheep into the United States will not be lifted until the Australian authorities succeed in eradicating contagious pleuro-pneumonia in that country, according to a statement made by Edwin T. Meredith, Secretary of the Department of Agriculture, in a recent letter to an inquirer upon this subject.

The inquirer called attention to an article published in an Australian trade paper purporting to contain a statement by the chief inspector of stock of New South Wales to the effect that there is no foot-and-mouth disease in Australia, and that as contagious pleuro-pneumonia is purely a disease of cattle, and can be carried only by them, its existence in Australia is not a good reason for the embargo against sheep.

While agreeing that sheep are not subject to pleuro-pneumonia of cattle, the Secretary pointed out that "there is no positive evidence that they may not serve as carriers." The disease, he said, was "only finally eradicated from this country in the early nineties, after the inauguration of methods of operation which included the elimination of possible indirect sources of infection, one of which was believed to consist in the possibility of sheep carrying the infection in their fleece."

"The department, therefore," the Secretary said, "having in view the responsibility imposed upon it by law, of protecting the cattle interests of the United States, has felt compelled to decline to issue permits for the importation of cattle, sheep, or other ruminants from countries in which either foot-and-mouth disease, rinderpest, or contagious pleuro-pneumonia of cattle exists, and it is considered that until such time as the Australian authorities succeed in eradicating contagious pleuro-pneumonia from such commonwealth, favorable consideration can not be given to the importation of either cattle or sheep from Australia."

The western part of the Alaskan Peninsula and the Aleutian Islands are grass-covered and present great possibilities for future development of the live-stock industry. In the interior regions and to the north is a vast field suitable for reindeer.

LACK OF MONEY WILL CURTAIL DEPARTMENT'S WORK

(*Continued from page 1.*)

"With the money appropriated for hog-cholera eradication the department has been carrying on work in 36 of the principal hog-raising States. The specialists in the field have been directing their efforts both to treating hogs and to demonstrating to veterinary practitioners, farmers, and others the proper method of determining when hogs have cholera and of giving them the proper treatment. They have also been showing farmers, by demonstrations, lectures, and personal interviews on the farm, how they may protect themselves from losses from the disease. With the reduced appropriation, only about one-third as much work can be done next year as has been done heretofore.

Work in Many States Affected.

"The eradication work, so far as Federal assistance is concerned, will have to be completely abandoned in several States. The force of men in the field helping farmers to save their hogs from cholera will have to be reduced from 140 to about 54. The large hog-producing States which now have from five to eight Federal hog-cholera specialists will henceforth have not more than two or three and many of them only one.

"The cooperation that has been established through a period of years between the Federal Department of Agriculture and State officials will have to be abandoned in many cases, which simply means that the machinery for hog-cholera control built up by years of patient work will be disrupted.

"The appropriation for the investigation of animal diseases has been reduced by $14,400. One of the results will be the abandonment in New York and Texas of cooperative work looking to the control of contagious abortion of cattle. Work on other diseases will be generally curtailed, although it is impossible now to indicate the specific localities that will be affected. Among the studies that will be reduced are those on stock poisoning by plants, anthrax, tuberculosis, round worms of sheep, internal parasites, cattle ticks, mange mites, and other external parasites. These studies are now being conducted by the branch of the department that made the fundamental discovery relating to the cattle tick which causes Texas fever, perfected the vaccine cure for blackleg, discovered the cause of hog cholera and the method of prevention, and worked out the formula for arsenical dip in eradicating cattle ticks.

"The appropriation for dairy investigations has been reduced by $12,750. That appears to be a small sum; nevertheless, we are accomplishing a great deal with it, and the reduction will make it necessary for the department to abandon its cow-testing work in the States of Ohio, Indiana, Iowa, Minnesota, Nebraska, Pennsylvania, West Virginia, Rhode Island, New Jersey, and Connecticut.

"It must discontinue also the work it now has under way to improve the quality and increase the use of dairy products in the States of Iowa, Kansas, Mississippi, and Louisiana. It will have to withdraw from the cooperative dairy extension work in Nevada and Wyoming. Cow testing and the other lines of work that will have to be abandoned have enabled farmers in all these States to save considerable sums by pointing out the importance of eliminating the cows that do not pay for their keep and of generally improving the quality of dairy cows. As a result of the discontinuance of the work the farmers in the States affected will probably lose this year many times $12,750, and so will the farmers of other States into which the department would have sent its trained cow-testing association experts during the next fiscal year if Congress had appropriated the same amount of money that is available this year.

"About one firm in six in the United States has no milch cows. Other farms that keep some milch cows dispose of all the dairy products. The families living on these two classes of farms thus are deprived of a much needed food. The Department of Agriculture has been conducting a campaign to emphasize the importance of maintaining family cows on farms, has been demonstrating the making of a good quality of farm butter, and in some sections the work has resulted in the placing of family cows on a large number of farms. Only a very small portion of the large field has been covered. We had planned to extend it until we had covered all the territory, but this work, too, must be discontinued.

Tick Eradication Suffers.

"The Department of Agriculture has eradicated the cattle fever tick from approximately 70 per cent of the territory that it formerly occupied. It was felt that the Government should not leave the area freed of this pest to haphazard livestock development, but that it should follow up the tick eradication with an educational campaign to help the people to profitable cattle production. We now have a fund of $50,000 for that work. Half of it is devoted to dairy extension—assisting farmers in improving their methods of feeding, furnishing plans of dairy buildings and silos, giving instructions in the raising of calves, and aiding in the purchase of dairy cattle. The other half is used for demonstrations in general live-stock production. The result has been the establishment of a dairy industry along the best lines in the areas freed from ticks and a steady increase in the number of beef cattle.

"Congress did not appropriate anything at all for that work next year. Therefore, all Federal activities along the specialized line of live-stock production demonstrations in tick-free territory will cease, and beef-cattle specialists will be dispensed with in the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas. Dairy specialists also will be dispensed with in North Carolina, South, Carolina, Mississippi, Alabama, Arkansas, and Oklahoma.

"The Southern States have demonstrated their ability to breed, feed, and produce cattle that, in many instances, have carried off the sweepstakes at our International Live Stock Exposition at Chicago and other stock shows. Therefore, the live-stock industry of the South should, by all means, be encouraged and supported in every way possible.

Cattle Disease Fund Small.

"Congress has reduced the appropriation for combating foot-and-mouth disease by $950,000—from $1,500,000 to $550,000. Foot-and-mouth disease is one of the most destructive live-stock scourges known to veterinary science. It has six times made its appearance in the United States, but we have always been able to stamp it out. It exists in many of the European countries and is likely to appear here again at any time. If it does appear, the eradication work will have to be very prompt and very thorough or the disease will get out of hand and cause enormous losses. Of the appropriation that we have had in the past, $1,000,000 is merely an insurance fund. It can not be used except in case of an actual outbreak of the disease. Practically all this sum is eliminated by the reduction. The funds provided in the new bill will be insufficient to cope with any extended outbreak of foot-and-mouth disease and, if one should occur when Congress is not in session, there would be no quick means of getting the money that may be needed to protect the country.

"The funds provided for the Bureau of Plant Industry are approximately $375,000 less than the amount appropriated this year. The appropriation for cereal investigations, for example, has been reduced by $80,000. That means, first of all, that the field stations for carrying on this work will have to be closed in North Carolina and Tennessee;

at Amarillo, Tex.; Archer, Wyo.; at Highmore and Brookings, S. Dak.; Nephi, Utah; Burns, Oreg; and Lind, Wash. This is in addition to cereal field work that has already been discontinued at Williston, N. Dak., and Newell, S. Dak., because of the impossibility of continuing it under present high prices with the already inadequate appropriation.

"All these stations have been built up during a number of years to carry on experiments with new varieties and methods of cultivation. They have given the farmers they serve improved varieties and have developed for them cultural methods designed to produce the best yields.

Cereal-Disease Work Affected.

"Pathological work on cereals must be reduced. Stem-rust investigations must be discontinued at Ithaca, N. Y.; Lansing, Mich.; Auburn, Ala.; Tucson, Ariz,; and Corvallis, Oreg. Cereal-disease investigations along various lines, while they will not be entirely discontinued, must be reduced at Berkeley, Calif.; Milford, Conn.; Bloomington, Ill.; Lafayette, Ind.; Ames, Iowa; Manhattan, Kans.; Crowley, La.; St. Paul, Minn.; New Brunswick, N. J.; Fargo, N. Dak.; Hershey, Pa.; Knoxville, Tenn.; Arlington, Va.; Pullman, Wash.; and Madison, Wis.

"The extremely important studies that are being conducted on flax diseases, rice diseases, oriental downy mildew of corn, stripe and blotch disease of barley, soil-infesting rots of corn roots, stalks, and ears, and wheat scab will be greatly reduced, and investigations of many less important diseases will be practically discontinued. I will give just one illustration of what these cereal-disease investigations mean. During the past two years our specialists have discovered that corn-root rot and wheat scab are caused by the same fungus; that corn rot causes many missing hills and barren stalks; that it sometimes causes early ripening of apparently sound, but really diseased, ears which, because they are early, are saved for seed. Then they have shown that it is possible to detect the disease-carrying kernels by germination tests and so prevent the use of infested ears for seed. They discovered, also, that this same fungus is responsible for part of the heavy spoilage of canned corn, known to commercial canners as 'blacks,' and they have shown how this loss may be prevented by testing sweet-corn seed on the germinator and rejecting the diseased ears. This is only one among hundreds of lines of work carried on at these stations which must be abandoned or curtailed.

"The appropriation for western irrigation agriculture has been reduced by $20,000. That means, first of all, that the department will have to abandon its stations at San Antonio, Tex.; on the Umatilla Reclamation Project, Oregon; and on the Newlands Reclamation Project, Nevada. These stations have been of great benefit to farmers on irrigation projects in the working out of methods for the most satisfactory crop production under the varying conditions of the different projects. Closing them means the loss of the trained men who have been operating them, and of the increasingly valuable information secured from their work.

"This work was undertaken as a matter of simple justice to the farmers who had settled on the irrigation projects. The irrigated lands include something over 15,000,000 acres. One and one-half million acres are included in projects in which the Government has already invested more than $100,000,000 in construction work. The settlers are undertaking to repay that money to the Government. The stations that we now have to discontinue have been equipped gradually to provide facilities for making the irrigated farms profitable to the settlers, who could then repay the Government for the money it has spent.

Drug Crop Work Curtailed.

"The appropriation for drug, poisonous, and oil-plant investigations is $20,000 less than the amount provided this year. Just a word about what we are doing with that appropriation. Camphor, for instance, is extensively used in medicine and is indispensable in the celluloid industry. The world supply of camphor is controlled by the Japanese camphor monopoly. We have undertaken to develop an American source of supply, and large plantings of camphor have been made in Florida, but to establish the industry on a permanent basis it is necessary to continue our efforts a few years longer. Belladonna, digitalis, and cannabis are indispensable in treating many serious ailments. The supply has ordinarily come from other countries, but when the war shut off the imports of drugs from abroad the crisis was promptly met by increased production of these crops at home. That was possible only because of the department's investigations and introduction of drug plants. All that work will be seriously hampered because of the small amount of money provided for its prosecution next year. We shall have to abandon our cooperative work in the development of drug crops. Poisonous-plant surveys on the western stock ranges and in the national forests also will have to be largely discontinued, little further work can be done on vegetable-oil crop investigations, and the camphor project will have to be reduced by 75 per cent.

"The appropriation of $32,500 for biophysical investigations has been completely eliminated. That was the money with which we financed the investigations of the problems of temperature, moisture, soil, air, and other physical factors in relation to plant growth. The entire work must be discontinued, and the results of years of careful study on fundamentally important problems will be lost.

Food and Drug Inspection Reduced.

"The appropriation for enforcing the food and drugs act has been reduced by $30,000. Even with the present appropriation, the department has been able to maintain the enforcement of that important law only with great difficulty and through the practice of the most rigid economy. With the reduced amount provided for next year and constantly increasing costs of operation, it will be necessary to cut down the force to such a point that the food and drugs consumed by the people of this country can not be safeguarded with the usual measure of thoroughness. This situation arises at a time when there is the greatest need for unusual care in the inspection of food and drugs. The high prices of materials constitute a temptation to manufacturers to adulterate their products. As a result of decreased appropriations for the maintenance of the necessary inspection service, adulterated products, both imported and home manufactured, will find easier access to the tables and homes of the Nation than they have found since the enactment of this law.

Dye Investigations Cut.

"The appropriation for color investigations in the Bureau of Chemistry has been reduced by $30,020, or more than 30 per cent below the funds available this year. When the World War began the United States was practically dependent upon Germany and Austria for its dyestuffs. The color laboratory a few years ago began investigations which are rapidly putting this country on a self-sustaining basis in the dye industry, and which have already resulted in the granting of 16 patents. One achievement will serve to illustrate the importance of the work. Phthalic anhydride is used in the preparation of more than 300 chemicals, many of them of great commercial importance. Germany had enjoyed a practical monopoly on it, and at one time it sold as high as $7 a pound. The work of the color laboratory has made possible

the manufacture of the product in the United States at 45 cents a pound. American manufacturers are turning out enough of the material to take care of all domestic needs and are supplying Switzerland and some other foreign countries in direct competition with Germany. This alone has enabled the American manufacturers to start a new industry, and it has already more than returned all the money appropriated for the color laboratory since it was first organized, and yet it represents only one line of work of the laboratory. There are 15 other lines that have resulted in important developments.

Forest Stations Closed.

"The appropriation for investigating the handling and transportation of poultry, eggs, and fish has been reduced by $10,000. That work has been yielding results worth to the country every year many times the amount of the whole appropriation. The breakage of eggs in transit formerly was so great that the railroads claimed they were handling eggs at a loss. Now packing and shipping methods have been devised by which breakage can be reduced to little or nothing. These methods, however, are not yet in general application and there is need for extending the work to various sections of the country. Methods have been developed for preventing the spoilage of poultry in transit; and means have been devised for shipping fresh fish in good condition to inland cities which previously could not obtain them. We had planned to extend these three lines of work to sections of the country not yet reached, but this can not be done with the reduced appropriation.

"The appropriation for forest investigations has been reduced by $28,728. Here are some of the things the country will lose as the result: It will lose at least three of the four forest experiment stations on the western national forests, located at Priest River, Idaho; Colorado Springs, Colo.; Flagstaff, Ariz.; and Stabler, Wash. Much of the work dealing with maintaining and reproducing the forests in the East and South, where the problem of forest devastation and future timber supply is most acute, will have to be abandoned. Nothing whatever can be done in the Lake States or in the Northeast. Hardly a start can be made on urgent problems connected with the rapidly waning supply of hardwoods in the Central States and the Appalachian regions. Studies of the growth, yield, and future use of the vast areas of yellow-pine lands in the South will have to be abandoned. Little progress can be made in the general survey of national forest resources and in studying the economic problems inseparably connected with the development of a comprehensive forest policy.

Crop Estimates Hard Hit.

"The appropriation for the Bureau of Crop Estimates has been reduced by about $53,000. This means the discontinuance of all special service except the regular monthly crop reports on acreage, condition, and production of staple crops. It means that the services of crop-reporting specialists on cotton, tobacco, and rice will have to be dispensed with—and these three crops last year had a farm value of nearly $3,000,000,000. Loss of the rice specialists will directly affect the farmers in the States of Louisiana, Arkansas, Texas, South Carolina, and California. The value of the work of the tobacco specialists, which will be discontinued, is well known to the farmers of Connecticut, Pennsylvania, Virginia, North Carolina, South Carolina, Wisconsin, Kentucky, Tennessee, Ohio, Maryland, and Georgia. Through the loss of the cotton specialists all the cotton-growing States will be affected. Special estimates on the commercial production of fruit and truck crops, which had a farm value last year of nearly $500,000,000, will have to be discontinued. The commercial apple estimates are said to have been worth at least $1,000,000 to the apple growers alone last season; and the estimates of the commercial surplus production of potatoes are reported to have been worth more than $100,000 to the growers of a single county in Minnesota least season.

Pink Bollworm Fund Reduced.

"The appropriation for the eradication of the pink bollworm of cotton has been reduced by $100,000. The pink bollworm possibly is the most destructive enemy of cotton in the world. It has inflicted tremendous damage to every cotton-producing country on the globe, with the exception of the United States. It is present in this country in a few counties in Texas and in three parishes in Louisiana. With the full cooperation of the States concerned, the opportunity now exists to eradicate it. If it is not eradicated now, it will inevitably spread over all the cotton-growing territory in the United States, and will undoubtedly cause enormous losses.

"The Department of Agriculture is pursuing the only program that promises success. The work is already well under way and the prospects for complete eradication are distinctly favorable. Halfway measures will, almost certainly, mean money and work wasted. Such work can not be adjusted so that it will cost a fixed sum. It must be maintained on a basis which will insure the accomplishment of the end aimed at. It is like fire control or the maintenance of levees. It can not be dropped and later taken up again. As soon as vigilance is relaxed, the opportunity for control is lost. The reduction in the appropriation will make it impossible for the department to prosecute its efforts to eradicate the pink bollworm on the scale which the experts think necessary in order to insure success.

Discontinue Marketing Projects.

"The appropriation for the Bureau of Markets has been reduced by approximately $270,000. The funds for its investigational work, for example, are $30,000 less than the amount provided this year. One of the results of this decrease will be that the project which has to do with the marketing and distribution of farm products in cities will have to be discontinued. This work has resulted in many improvements in marketing conditions, and has benefited the consumer as well as the producer. Among the cities in which this project has rendered assistance in improving market conditions are: Chicago, Cleveland, Akron, Colorado Springs, Denver, Detroit, Indianapolis, Jacksonville, Key West, Richmond, Lynchburg, Memphis, Milwaukee, Miami, Pittsburgh, Oil City, Salt Lake City, Toledo, St. Augustine, and Wilkes-Barre.

"It will be necessary to discontinue all the work relating to the direct marketing of farm products by parcel post, express, and otherwise. This work has brought to light very useful information, and only through investigations of this sort is it possible to find a market outlet for much food which is not produced in sufficient quantities to be marketed in car lots and which otherwise may go to waste.

Market News Services Curtailed.

"The appropriation for the market news services on fruits and vegetables and on live stock and meats has been reduced by $58,680. These services have been indorsed by a large number of representative agricultural associations and by thousands of individual producers, commercial firms, and others. To conduct them properly, the department formerly had 17,000 miles of leased wire in operation. On account of decreased funds, its wire mileage already has been cut to about 5,000, and must be still further reduced under the limited appropriation. The Pacific coast, the intermountain region, the South, and Southwest,

which during the past year have been largely deprived of the benefits of the news services, have suffered further reductions in the last month. This is particularly unfortunate since all those sections, relatively remote from markets, are in urgent need of accurate and dependable market information.

"The service rendered the public from most of the large market centers, especially Boston, New York, Philadelphia, Pittsburgh, Chicago, Omaha, and Minneapolis, must be curtailed to such an extent that wide dissemination of information regarding market demands, supplies, and prices will be impossible. Forced consolidation of present leased wire facilities will result in confusion and delay on account of congested wires. It will be necessary to eliminate all livestock market messages during the forenoon to eastern points on the leased wire from the Kansas City, Omaha, and East St. Louis markets, and it will be necessary also to delay until the days' trading has commenced the transmission to the great live-stock markets of the West of all reports of prices in the eastern wholesale dressed-meat markets.

"We have just had to close the office at San Francisco which furnished market news on fruits and vegetables, and within a few months will have to discontinue the issuance of market reports on dairy products at Minneapolis and San Francisco. For practical purposes this will deprive the Pacific coast of the services of dairy products and fruits and vegetables, and it will greatly delay the dairy service to the important dairy sections now served from Minneapolis. One or two temporary offices will be opened on the Pacific coast to render a service on special crops during the heavy crop movement, but, as stated, the reduced funds have compelled the virtual elimination of an all-the-year-round service in this region.

Food Inspection Hampered.

"The food products inspection service, during the few years it has been in operation, has prevented the loss of thousands of dollars to the producer. It has practically eliminated the commission man in the important markets, who used to buy on a gamble and then reject the shipment if prices declined before it was received. It has made it possible for shippers and other interested parties to obtain reliable reports on the condition of their products when received in the markets. Terms and conditions of sale are stated with greater clearness and precision. The chances of misunderstanding are reduced, and the reports indicate to the shipper whether or not the stock was correctly graded, packed, and labeled. The service facilitates the distribution of farm products, hastens the release of cars, and prevents deterioration and waste caused by the delays incident to disputes.

"There is urgent need for the expansion of this service, but, with the reduced appropriation, not only is expansion impossible, but retrenchment is unavoidable. Butter-inspection work can be conducted in only four of the large markets, and the inspection of certain other commodities specified in the law, such as hay, can not be handled at all. We had expected to establish offices for the inspection of fruits and vegetables in such cities as Hartford, Conn.; Louisville, Ky.; and Norfolk, Va.; but this can not now be done. It should be borne in mind in this connection that the food products inspection service at the present rate of progress will collect in fees this year about $58,000, which will be turned into the Treasury.

Can Not Extend Work.

"Through the cooperative employment of field agents in various States, important progress has been made in developing broad consistent marketing policies. Without assistance in coordinating the activities of the various agencies, each State will undoubtedly develop its marketing work in a different way and confusion and waste will be inevitable. The study of marketing problems on a comprehensive scale was undertaken so recently, and authoritative information is consequently so meager, that it is particularly important to give State agencies the benefit of such conclusions as have been reached by the department and such States as have undertaken work along these lines; otherwise, they can not avoid costly mistakes and loss of time. We are at present cooperating with 28 States and had expected to extend work to the other States.

"The appropriation for this work, however, has been reduced by $6,650, and its expansion, which seems so essential at the present time, will have to be postponed until funds ar available.

"The Department of Agriculture is charged with the duty of enforcing the United States grain-standards act. The appropriation for this purpose will be reduced by nearly $50,000 on July 1, although it is now barely sufficient to enable the department to carry on the work in the most satisfactory way. This legislation, being mandatory and not permissive, imposes upon the department certain duties which it can not avoid, and the decrease of already inadequate funds necessarily embarrasses the department and makes it difficult to enforce the law in the constructive manner which the public has every right to expect.

"To carry out the provisions of the grain standards act, it is necessary, of course, to maintain an organization covering the entire United States. This requires the maintenance of a relatively large number of branch offices, and these, in the larger markets, must be manned by forces sufficiently large to handle effectively and expeditiously the great volume of work which arises automatically through the operation of the law. Measures will, of course, be taken to execute as much of the work as possible with the decreased funds, but in order to come within the appropriation we shall have to discontinue two field stations; i. e., Salt Lake City, Utah, and Cleveland, Ohio. In fact, the Salt Lake City office was closed March 31, 1920, in anticipation of the reduction in funds, and the Cleveland office was closed on May 31. Urgent appeals have been received to reinstate the work in Salt Lake City, but the reduction in funds absolutely precludes such action. The staff at Boston, Mass., must be reduced. It is highly desirable to maintain the force at its present strength, but this can not be done with reduced funds. It will be necessary to postpone for at least one year the promulgation of standards for milled rice. There is insistent demand for the standardization of additional cereals under the grains standards act, and arrangements had been made to promulgate rice standards before it became clear that the appropriation would be reduced. In fact, tentative standards were announced in February, and hearings regarding them were held in March of this year. Promulgation of the standards must now be deferred until such time as an adequate appropriation is made available for their effective enforcement.

"The appropriation for surveying soils, so that the farmers of the country may know the character of the soil on their farms and that the department and State colleges may be in position to help them in solving their soil problems, has been reduced by $17,500.

Forest-Insect Control Affected.

"The funds available to the Bureau of Entomology for combating insect pests have been curtailed by $247,000. The amount provided for forest-insect investigations, for example, is $7,590 less than the sum appropriated this year. This will make it necessary, first of all, to abandon the field stations at Colorado Springs, Colo., and Ashland, Oreg., and the substation at Chico, Calif., and also

to reduce the work at the field laboratory at Los Gatos, Calif. All work in the northwestern United States on the investigation of insects injurious to forests, forest products, and shade trees will be discontinued. Work in the Southeastern States relating to insect infestation of cut timber and forest products will be abandoned. Plans to enlarge the work relating to chemical treatment for the prevention of white ants can not be carried out. Generally speaking, the reduction will cripple the work of forest-insect control throughout the United States. This project has been carried on for a number of years without any increase in appropriation, although there has been a steady increase in the demand for assistance from the Forest Service, the National Park Service, and the private owners of woodlands.

"A cut of $21,760 has been made in the appropriation for truck-crop and stored-produce insect investigations, and Congress has directed that $10,000 of the funds remaining be used for a new line of work. The project for the control of sweet-potato weevil, the most serious menace to a southern food crop that was worth last year $138,000,000, will have to be considerably curtailed. The six States in which the weevil is known to exist are Texas, Louisiana, Mississippi, Alabama, Georgia, and Florida, which produce more than 50 per cent of the crop. Means for the eradication of the pest have been divised and are being satisfactorily carried out in three States. In a fourth, Alabama, the weevil has been practically eradicated, only one locality reporting an infestation during the last harvest. This work, so well begun, must now be greatly reduced. The let-up in the active campaign will result not only in heavy monetary losses to the South, but lack of inspection and control opertaions may be followed by general reinfestation of the areas freed from the pest.

Two Stations Abandoned.

"Aside from the sweet-potato weevil work, other serious curtailments must be made. We shall have to abandon the station at Greeley, Colo., which is investigating sugar-beet and potato insects, and also the station at Chadbourne, N. C., which is studying berry and cabbage insects. Discontinuance of the work at Greeley is particularly unfortunate because of the threatened serious outbreak of the sugar-beet web worm this season. Without control, it may cause losses running into millions.

"The fund for miscellaneous insect investigations has been reduced by $10,000. About three-fourths of this reduction must be borne by the project for the investigation of insects affecting the health of man, such as mosquitoes, the house fly, etc., and insects affecting domestic animals. Some of the work will have to be abandoned and the remainder curtailed. The rest of the cut will fall on what we call the systematic staff—a corps of experts of world-wide reputation brought together by reason of their intimate knowledge of the different groups of insects. An insect must be identified before the means of controlling it can be found. That is what these men do—not only for the Department of Agriculture but for the various State agricultural colleges and experiment stations.

Gipsy Moth Control Suffers.

"The fund for control of the gipsy moth and the brown-tail moth has been reduced by $52,650. This work was begun in 1906, when these two pests were threatening to destroy all kinds of trees in New England and the Northeast. Several million dollars of Federal money has been expended on it, and a still larger amount has been spent by the States concerned. The pests are under control, but disastrous spread has been prevented only with the greatest difficulty under the present appropriation. The Federal activities have been concentrated largely along the border lines in order to protect the rest of the country, while work in the interior of the infested areas has been left largely to the States. Now work along the border line must be greatly curtailed, and if conditions are favorable for the spread of the pests the year may see a great deal of new territory infested. Sporadic outbreaks have occurred from time to time in Ohio, New York, and New Jersey, but we have always succeeded in exterminating the moths in these areas. If such outbreaks occur now there will not be sufficient money to handle them properly.

"A reduction of $2,000 has been made in the appropriation for investigation of tropical and subtropical plant insects. That is a comparatively small sum of money, but it seriously affects six or seven projects, involving important fruit industries in California and Florida and the other Gulf States.

Other Activities Affected.

"It is impossible in this statement to indicate in detail all the lines of work that will be affected by the reductions made in the department's appropriations for next year, and, of course, it does not take into account the projects which the department feels, as indicated in the estimates submitted to Congress, should be inaugurated or expended in order to deal more effectively with important problems in the field of agriculture. Many important activities in addition to those mentioned will necessarily have to be curtailed, including investigations in the culture and improvement of forage crops, studies of live-stock production in sugar-cane and cotton districts, work in the control of the potato-wart disease, field experiments in the various methods of road construction and maintenance, and investigations concerning road materials, farm-irrigation investigations, and farm-drainage investigations. A reduction of $50,000 in the fund heretofore available for the essential improvement work on the national forests will also make necessary the postponement of much-needed work in connection with the construction and maintenance of roads and trails, bridges, fire lanes, telephone lines, fences, and other improvements necessary for the proper and economical administration, protection, and development of the national forests.

"All these reductions are much more serious than appears from a mere dollars and cents statement. A dollar, as we all know, buys much less of everything than it formerly bought, and also does considerably less work. Even if all the appropriations had been retained at the old figures, therefore, the department would have been seriously handicapped in carrying on its work effectively.

Seed Distribution Continued.

"Notwithstanding the recommendation of the department that it be eliminated, the item of $239,000 for congressional seed distribution has been included in the bill. A special letter was sent on February 26, 1920, to the chairman of the Senate Committee on Agriculture and Forestry, strongly urging that the appropriation for the free seed distribution, which has been carried in the bill for many years, be discontinued, and that the funds thus saved be used for the prosecution of urgently important investigational work on problems of crop production. The Senate committee adopted the department's recommendation and its action was confirmed by the Senate. The conferees at first were unable to reach an agreement on the matter, and so reported to both Houses of Congress. It was then considered by the House and the House conferees were instructed to insist on the retention of the item in the bill. The question was reconsidered by the conferees, but they were unable to agree and again reported a disagreement. The House again insisted on the inclusion of the appropriation in the bill. At this stage the Senate suggested, as a compromise, the following:

"For the purchase, testing, and distribution of valuable seeds, bulbs, trees, shrubs, vines, cuttings, and plants, $75,000. Said seeds, bulbs, trees, shrubs,

vines, cuttings, and plants shall be sent only to such persons as shall make request therefor: *Provided*, That all such requests made of Senators, Representatives, and Delegates in Congress, if transmitted to the Department of Agriculture, shall be complied with by said department."

"The House, however, refused to accept the proposal, and the Senate finally receded from its amendment, striking the item from the bill. The congressional seed distribution, therefore, carrying an appropriation of $239,000, will be continued during the next fiscal year."

SECRETARY SUMMARIZES ACTIVITIES AFFECTED

Here are some of the things that will result from the reduction in the appropriation for the Department of Agriculture for the year beginning July 1, 1920:

Hog cholera eradication work, so far as the department is concerned, will have to be completely abandoned in several States.

The force of men in the field showing farmers how to save their hogs from cholera will have to be reduced from 140 to about 54.

The large hog-producing States, which now have the services of five to eight Federal specialists on hog cholera, will, henceforth, have not more than two or three, and many of them will have only one.

The department is obliged to withdraw from financial support of cooperative cow-testing association work in Ohio, Indiana, Iowa, Minnesota, Nebraska, Pennsylvania, West Virginia, Rhode Island, Connecticut, and New Jersey.

Cooperative work toward improving the quality and increasing the use of dairy products will have to be abandoned in Iowa, Kansas, Mississippi, and Louisiana.

The department will have to discontinue its cooperation in the employment of dairy specialists engaged in demonstration work in Nevada and Wyoming.

The plan to extend that work next year into Arizona, New Mexico, and Colorado can not be carried out.

Demonstration work designed to aid in the establishment of general live-stock industries in territory freed from cattle ticks must be abandoned in the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, and Texas.

Dairy specialists must be dispensed with in North Carolina, South Carolina, Mississippi, Arkansas, and Oklahoma.

The insurance fund of $1,000,000 to eradicate foot-and-fouth disease, if it should appear in this country, is practically wiped out.

Many field stations engaged in cereal-improvement work will have to be closed. This includes all the stations in North Carolina and Tennessee and those at Amarillo, Tex.; Archer, Wyo.; Highmore, S. Dak.; Brookings, S. Dak.; Nephi, Utah; Burns, Oreg.; and Lind, Wash. Stations at Williston, N. Dak., and Newell, S. Dak., already have been discontinued because increased costs could not be met with the money available.

Work toward preventing cereal diseases must be discontinued at the stations at Ithaca, N. Y.; Lansing, Mich.; Auburn, Ala.; Tucson, Ariz.; and Corvallis, Oreg., and must be greatly reduced at the stations at Berkeley, Calif.; Milford, Conn.; Bloomington, Ill.; La-Fayette, Ind.; Ames, Iowa; Manhattan, Kans.; Crowley, La.; St. Paul, Minn.; New Brunswick, N. J.; Fargo, N. Dak.; Hershey, Pa.; Knoxville, Tenn.; Arlington, Va.; Pullman, Wash.; and Madison, Wis.

Stations at which problems in irrigation agriculture are studied will have to be abandoned at San Antonio, Tex.; Umatilla, Oreg.; and Newlands, Nev.

The staff engaged in the enforcement of the Food and Drugs Act must be reduced.

The investigational work at three out of the four forest experiment stations on the western forests must be discontinued.

Only one or two men can be retained for field investigations in forestry in the whole eastern portion of the country.

Much work having to do with maintaining and reproducing the forests in the East and South, where the problem of future timber supplies is most acute, will have to be abandoned. Nothing whatever can be done along that line in the Lake States or the Northeast.

Urgent problems connected with the rapidly waning supply of hardwoods in the Central States and the Appalachians can not be given proper attention.

Studies of the growth, yield, and future use of the vast areas of yellow-pine lands in the South will have to be abandoned.

Very little progress can be made in the general survey of national forest resources.

The color laboratory which in the past few years has aided in the establishment of an American dye industry must greatly reduce its work.

Work toward preventing spoilage during shipment of poultry, eggs, and fish must be curtailed in several directions.

The services of crop-reporting specialists on cotton, tobacco, and rice will have to be dispensed with.

Special estimates on the commercial production of fruits and truck crops must be discontinued.

The fund for eradicating the pink bollworm, the most destructive enemy of cotton, has been considerably reduced.

The project designed to give advice to cities concerning their marketing problems must be discontinued.

It will be necessary to discontinue all work to develop direct marketing of farm products by parcel post, express, and otherwise.

The Pacific coast, the Intermountain region, the South, and Southwest must, in large measure, be deprived of the benefits of the market news services.

The news service rendered the public from most of the large market centers, especially Boston, New York, Philadelphia, Pittsburgh, Chicago, Omaha, and Minneapolis, must be so curtailed that widespread dissemination of information regarding market demands, supplies, and prices will be impossible.

It has been necessary to close the offices at San Francisco which have been furnishing market news on fruits and vegetables, and the dairy products office will have to be closed soon.

The issuance of daily market reports on dairy products at Boston, Philadelphia, and Minneapolis may have to be discontinued, Boston and Philadelphia being served from New York, and the important dairy section surrounding Minneapolis obtaining greatly delayed reports from Chicago.

The inspection service on fruits and vegetables will be reduced. Butter inspection work can be conducted in only four of the large markets, and the inspection of certain other commodities specified in the law, such as hay, can not be handled at all. Plans to establish offices for the inspection of fruits and vegetables in Hartford, Conn., Louisville, Ky., and Norfolk, Va., can not be carried out.

Grain supervision offices at Cleveland and Salt Lake City have been closed and the force of the Boston office will be reduced. Standards for milled rice, already planned, can not be promulgated because of a lack of funds for their effective enforcement.

Cooperative work in the development of drug crops will be abandoned.

The project to develop a home supply of camphor, which important product is now controlled by Japanese monopoly, will have to be reduced by 75 per cent.

Little further work can be done on vegetable oil crop investigations.

All investigations of the problems of temperature, moisture, soil, air, and other physical factors in relation to plant growth must be completely discontinued.

Cooperative work in the control of contagious abortion of cattle will have to be abandoned in New York and Texas.

Investigations of animal tuberculosis, anthrax, and various other diseases, as well as studies of stock poisoning by plants, will be greatly reduced.

Forest insect field stations at Colorado Springs, Colo., and Ashland, Oreg., and the substation at Chico, Calif., will be abandoned, and the work at the field laboratory at Los Gatos, Calif., seriously curtailed.

All work in the northeastern United States on investigation of insects injurious to forests, forest products, and shade trees will be discontinued.

Work in the southeastern States relating to insect infestation of cut timber and forest products will be abandoned.

The assistance given the National Park Service, the Forest Service, and owners of private woodlands in insect control will be reduced.

The work toward controlling and eliminating the sweet-potato weevil, which was making good progress toward complete elimination of the pest, will have to be greatly curtailed.

It will be necessary to abondon the field station at Greeley, Colo., devoted to experiments with sugar beet and potato insects.

The station at Chadbourne, N. C., investigating berry and cabbage insects, will be discontinued.

Work on insects injurious to the health of man, such as yellow-fever and malarial mosquitoes and the house fly, must be reduced.

Other lines of activity which will have to be materially curtailed include investigations of the culture and improvement of forage crops, the soil survey work, studies of live-stock production in sugarcane and cotton districts, work in the control of the potato-wart disease, field experiments in the construction and maintenance of roads and of road materials and preparations, farm-irrigation investigations, and studies in farm drainage. A cut of $50,000 in the fund for improvements on the national forests will necessarily hamper work necessary for the proper and economical administration, protection, and development of the national forests.

This summary, of course, does not take into account the projects which the department feels, as indicated in the estimates submitted to Congress, should be inaugurated or expanded in order to deal more effectively with important problems in the field of agriculture.

Notwithstanding the recommendation of the department that the appropriation of $239,000 for congressional seed distribution be eliminated and the money diverted to necessary and important activities having a direct bearing on agricultural production, this item, although dropped by the Senate, has been finally retained in the bill.

MEMORIAL FUND FOR OUR WAR HEROES NOW TOTALS $7,445

Voluntary subscriptions, totaling $7,445.73, for the erection of a memorial in tribute to the 52 employees of the Department of Agriculture who lost their lives in the World War have been received to date, according to an announcement by the committee in charge of raising the fund. The memorial will stand in the grounds of the Department at Washington, D. C. Of this amount only $64.89 has been expended by the committee, leaving a balance in bank of $7,380.84, which is drawing 3 per cent interest. It is estimated that at least $10,000 will be required to erect a memorial which will be a credit to the department and suitably commemorate its fallen heroes.

Tentative plans for the memorial are under consideration, and the committee expects at the proper time to adopt final plans for a monument which will meet with the approval of all concerned, and be acceptable to the Fine Arts Commission.

The consent of Congress is necessary before final steps can be taken for the erection of the memorial. The Senate has passed a joint resolution giving the authority desired, but the House has not yet taken final action on the resolution which was referred to the House Committee on the Library. The Secretary of Agriculture, as well as the war memorial committee of the department, has requested the House committee to give early consideration to the joint resolution. While unable to report the resolution back to the House during the present session, it is believed that the committee will take definite action before the present Congress expires next March.

As soon as authority is granted by Congress, the war memorial committee will take immediate steps to secure the funds necessary to proceed with the erection of the memorial.

A BIGGER NICKEL'S WORTH IF YOU ROAST 'EM YOURSELF

"Hot roasted peanuts, 5 cents a bag."

Same old price to be sure, but mighty few peanuts to the bag.

Recently the Virginia-Carolina Peanut Growers' Association, a farmers' organization, has taken steps to popularize the sale of raw peanuts in 5-pound bags direct to families. Well-cured raw peanuts, especially of the small Spanish variety, are excellent to eat without being roasted, but since a good many people have not acquired a taste for the raw product, here are simple instructions for roasting, suggested by the United States Department of Agriculture.

Where an ordinary coal, gas, oil, or electric baking oven is used, it is important that the heat of the oven should not be any greater than for baking bread. Spread the peanuts thinly in a flat baking pan and stir them every 5 minutes, 30 to 45 minutes being required to complete the roasting. If the peanuts get too hot, they are sure to have a scorched taste. Where the oven seems a little too hot, stir the peanuts more often and do not roast so long.

When the peanuts first come out of the oven they will be tough due to the softening of the oil contained in them. Place them where the air will pass over them freely, and stir them or shake the pan occasionally while the nuts are cooling. The main point is to secure a mild roast without scorching or browning the meats. Peanuts can be roasted in a corn popper over a low clear fire but must be shaken continuously. Twenty to thirty minutes is sufficient time for roasting the little Spanish peanuts in this way. Where peanuts have been roasted for several days and become a trifle stale their flavor can be restored to some extent by reheating them for a short time. Better roast them often and not too many at one time.

FREE DELIVERY A MISNOMER—SHOPPER PAYS COST IN END

There is no such thing as free delivery for the shopper, specialists of the Bureau of Markets of the United States Department of Agriculture shrewdly point out. It may be free in the sense that the customer does not make a separate payment for that item, but each delivery costs the merchant a definite sum, and to cover this cost he must put a higher price on his commodities, and the customer pays, though indirectly, for the service.

Market baskets are in style nowadays, and it is one of the wholesome signs of the age that people are breaking away from the idea that a perfect lady or gentleman never carried a package. Now they are carrying home not only food supplies but other articles as well. Where the cost of delivery has been eliminated from the stores' prices, persons so situated that they can take advantage of the fact and perform their own delivery services can often make appreciable savings.

"BETTER SIRES—BETTER STOCK" GOES AHEAD

BETTER SIRES NOT MERELY PUREBRED.

The "Better Sires—Better Stock" movement is more than a campaign for purebred sires, according to United States Department of Agriculture officials. It is a better-sires effort, which means that, in addition to the elimination of scrub and grade sires, purebred sires must be of good quality. The slogan "Better Sires—Better Stock" urges not only purebred sires but good purebreds.

SOLD GRADE BULL—BOUGHT PUREBRED.

"I sold a good high-grade Hereford sire I raised myself, because I would use nothing but a purebred registered bull." With this comment a live-stock owner in Conejos County, Colo., enrolled in the "Better Sires—Better Stock" movement. In addition to his Hereford herd, consisting entirely of purebreds, this stockman has a dairy herd of 20 purebred, crossbred, and high-grade cows, headed by a purebred Holstein bull.

GOOD BREEDERS, GOOD READERS.

Bulletins on breeding, feeding, and farm management are requested to a noticeable extent by persons enrolling in the "Better Sires—Better Stock" movement. The interest in the nation-wide effort to improve the quality of domestic animals and the evident desire of live-stock owners to obtain dependable information has caused experts of the United States Department of Agriculture to conclude that good breeders are good readers, and vice versa.

ALL SIRES REGISTERED.

With the gradually increasing enrollment in the "Better Sires" movement, the United States Department of Agriculture notes unusual interest in registration of sires. Many enrollment blanks, on which breeding stock is reported, contain the name and registry number of stock, although such information is not specifically asked for. A recent enrollment from a live-stock owner in Athens County, Ohio, shows that all his sires—a Shorthorn bull, a Berkshire boar, and a Delaine ram—were registered stock of good quality. In addition he kept a registered Collie dog. Furthermore, his Rhode Island Red poultry were all standardbred.

The result of using pure-bred sires is shown by the entire absence of scrubs on the farm. All the female animals listed were grades, cross breds, or pure breds.

NEVER USED "MIXED" BULLS.

"I have nothing but purebred Hereford bulls, have been breeding registered Hereford bulls for 35 years, and have never used any mixed breed or grade."

This statement addressed to the United States Department of Agriculture by a Texas stockman, who recently joined the "Better Sires—Better Stock" campaign, indicates the esteem with which pure-bred sires are regarded in Brown County, Tex., where he lives. In addition to his herd of 245 cattle, this stock owner listed 700 goats, 600 sheep, and 30 swine, kept for breeding purposes.

FARMERS TO BUY PUREBRED SIRES.

More than one-third of a group of farmers in Clallam County, Wash., who recently enrolled in the "Better Sires—Better Stock" campaign will purchase purebred sires in one or more classes of animals. The communications to the Department of Agriculture showed a particular interest in purebred boars, although many other classes of animals besides swine are kept in the community.

The owner of one well-stocked farm listed a Guernsey bull, a Percheron stallion, a Chester White boar, a Lincoln ram, a Bronze gobbler, and a Barred-Rock rooster, all of pure breeding. There were no scrubs of any kind on this farm.

VIRGINIA LEADS ALL STATES.

With more than 18,000 head of domestic animals in addition to poultry enrolled in the "Better Sires—Better Stock" movement, Virginia leads all other States in the Nation-wide effort to rid the country of scrub and other inferior sires. The stock mentioned is owned by 670 farmers, of whom 354 are in Pulaski County, Va. All of these live-stock owners have filed with the United States Department of Agriculture declarations that they will not only use pure-bred sires, but will follow methods leading to further live-stock improvement.

The Bureau of Animal Industry, which is handling the enrollment records, received from Virginia recently 72 pledges in one day. Of this number 18 contained statements that purebred sires, including rams, boars, and roosters, would be purchased. Cases of this kind show that the movement is not only educational, but is gradually resulting in the replacement of inferior males with purebreds.

NEW COUNTIES QUARANTINED AGAINST CATTLE FEVER TICK

In accordance with an order signed by the Acting Secretary of Agriculture, a Federal quarantine against the cattle fever tick will be placed July 1, 1920, on Clark, Cleveland, Columbia, Howard, Little River, Pike, Saline, Sevier, Union Counties, and a part of Pulaski County, Ark. The part of Pulaski County affected lies south and west of a line beginning at the point where the Chicago, Rock Island & Pacific Railway intersects the boundary line between Perry and Pulaski Counties, thence following the railway in a southeasterly direction to the point where the railway intersects the valley division of the Missouri Pacific Railroad, near the Rock Island depot in the city of Little Rock, thence following the valley division of the Missouri Pacific in a southeasterly direction to the point where the railroad intersects the northern boundary line of Jefferson County. The counties and portions of counties above named were released from Federal quarantine in December, 1917 and 1919, with the understanding that the cattle owners and county officials would continue to cooperate in completing the "mopping-up" work and eliminating ticks from certain premises or areas held under local quarantine. It appears, however, they have failed to comply with the agreement and ticks have multiplied until they now constitute a menace to other counties in the State as well as to tick-free areas in other States. All other released counties in Arkansas are doing satisfactory "mopping-up" work, and it is believed that no other replacement of quarantine will be found necessary in that State.

The placing of the quarantine means that interstate movement of cattle from these areas may be made only in accordance with the regulations of the Secretary of Agriculture to prevent the spread of cattle fever, which is carried by the tick.

WHEN TO CUT WHEAT.

Wheat may be cut with safety when the straw has lost nearly all its green color and the grains are not entirely hardened. If cut sooner than this, shriveled kernels will result. If left standing until fully ripe, a bleached appearance, due to the action of the elements, often results, and loss from shattering may ensue. Wheat that is fully ripe is also more difficult to handle. Where the area of wheat is large, cutting should begin as early as it can be done safely.—Farmers' Bulletin 885, United States Department of Agriculture.

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COST OF GROWING 1919 WHEAT AVERAGED $2.15 A BUSHEL

On 2 of the 481 Farms Studied, Cost was As Low As $1 a Bushel.

If Price Had Been $2.15—Average Cost of Production—More Than Half of Farmers in Survey Would Have Lost Money.

The cost of producing wheat of the 1919 crop was as low as $1 a bushel on just two farms out of 481 included in a cost of production study just completed by the United States Department of Agriculture. On 20 farms it was $5 or over. The bulk of the farms produced wheat at a cost somewhat less than midway between these two extremes. The average cost per bushel for all farms was $2.15. At such a price half the farmers in question would have lost money on their wheat.

Fourteen representative districts in the Wheat Belt were visited by the field men of the Office of Farm Management in making this investigation, a preliminary report of which has just been issued. Nine winter wheat areas were surveyed in Kansas, Nebraska, and Missouri, and five spring wheat areas in Minnesota, North Dakota, and South Dakota. For winter wheat 284 records were taken, for spring wheat 197.

Winter Wheat Ranged from $1 to $8.20.

In the winter wheat area costs ranged from $1 a bushel for two farms to $8.20 on one farm. The average cost was $1.87. If the price received had been $1.87 more than half of these winter wheat growers would have produced wheat at a loss.

In the spring wheat areas the average cost was much higher—$2.65—the range running from $1.10 for one farm to $5 or over for 17 farms. If the price received had equaled the average cost, between 50 and 55 per cent of these spring wheat growers would have failed to break even.

Yields averaged 14.9 bushels per acre for the winter wheat farms, and 8.4 bushels for the spring wheat farms, and the cost per acre $27.80 for winter wheat, as against $22.40 for spring wheat.

"Necessary Price" Above Average Cost.

Department specialists, in cost of production studies, point out in this connection that, for the farms covered in this investigation, the so-called "necessary price"—that is, the price necessary to give the producer a fair degree of certainty of making a profit—would be found at a level considerably above that of the average cost of production. For example, to allow a profit on 80 per cent of the wheat produced on the farms covered by this study, the price would have to be about $2.60, as compared with an average

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HELPING THE FARM HOME.

By E. T. Meredith, Secretary of Agriculture.

A condition must be diagnosed before it can be successfully treated. The United States Department of Agriculture and the State agricultural colleges made a farm home survey, not for the sake of the survey itself but as a preliminary to the cure of some of the disorders exposed.

For some time past statistics have shown that an increasing number of farm families are moving to town. If those who left were surrounded by conditions as unfavorable as some of those brought out in the survey, their exodus is not surprising. The whole body social will suffer with the abandonment of any considerable number of farms. On the other hand, if conditions were as satisfactory on the whole, as the majority wrote of, it is doubtful whether in the end they will find themselves happier or more prosperous in town then they would have been if they had stayed in the country.

In those localities where the conditions on the farms are such that the occupants are dissatisfied, a remedy must be found, for the farmer and his family are entitled to living conditions which are the equal in comfort and healthfulness of those he would find in a town or city.

The Department of Agriculture means to bring to bear on this case all the curative power it possesses. It asks the sympathetic aid of all those other agencies which can be of such great assistance—the church, the school, the community organization, and the press. Most important of all is the help which the farm home itself can give, for our efforts can accomplish no great thing unless the members of the farm families are willing to cooperate.

A detailed account of the survey begins in this issue of the Weekly News Letter.

SCIENTISTS REPORT ON USES FOR WOOL SCOURING WASTES

Desire Cooperation of Wool Men in Turning Wastes into Profits.

Many More Samples will be Analysed before Investigations are Completed—Tables Show Various Amounts of Wastes.

How to use profitably the grease and other products obtained in the scouring of wools is the problem that the specialists of the Bureau of Chemistry, United States Department of Agriculture, have undertaken to solve. That a number of useful substances can be obtained from wool-scouring wastes has long been known, but whether or not they can be obtained in quantities and at a cost that will be profitable in normal times depends upon the development of practical and efficient methods for recovering and using them.

Per Cent Varies.

Chemical analyses of a large number of samples of all grades and kinds of unscoured wool show that the percentage of grease varies widely even in the same grade or class and is high in nearly all grades and classes, and is surprisingly high in certain grades, probably higher than is generally known even to the wool industry. In Ohio, delaine, a very greasy wool, grease varies from 17.8 per cent to 41.9 per cent. This means that in every 100 pounds of unscoured wool containing the highest percentage there is over 41 pounds of grease. The profitable utilization of such an item

is well worth the serious attention of the wool-scouring industry.

The specialists of the Bureau of Chemistry are making a study of the suitability and adaptibility of the grease to various uses, including leather dressing, waterproofing, and the manufacture of varnish and of lanolin. There is a constand demand for lanolin for use in the manufacture of cosmetics and ointments. Methods for the economical recovery of potash, soap greases, and fertilizer are being developed.

The results of the analyses of the samples thus far examined are given in the following tables. It is planned to analyse many more samples before the investigations are completed. All percentages given refer to wool in the grease, and that all wools are classified in the tables just as they were marked when received from the mills.

OHIO WOOLS.

Sample.	Grease.	Water extract after removal of grease.	K_2O in water extract.	Nitrogen in water extract.	Moisture.	Ash.
Delaine.	*Per cent.*	*Per cent.*	*Per cent*	*Per cent*	*Per cent*	*Per cent.*
36622 (rinsed.)	17.77	6.30	1.14	0.33	3.09	8.42
36623	41.95	7.90	2.06	.30	4.45	11.27
36558	29.34	10.77	2.87	.46	4.80	9.68
36887	27.99	13.68	3.15	.84	2.02	11.27
36910	28.07	17.14	4.73	.65	4.99	13.69
36963-3	41.43	8.84	2.38	.35	1.15	8.77
36947-1	26.67	14.78	3.21	.55	2.09	15.05
½-blood.						
36865	25.57	15.97	3.36	.85	1.89	15.86
36889	37.75	10.62	2.06	.70	4.11	10.82
36896	26.98	18.58	4.80	.88	3.14	17.41
36963-4	18.53	17.33	4.31	.82	1.89	15.41
⅜-blood.						
36903-2	9.48	11.67	3.23	.42	2.97	35.70
36898	16.39	20.38	5.79	.89	5.19	12.49
36913	11.11	17.22	4.13	1.03	5.62	9.75
36887	13.78	18.73	4.94	.92	5.66	12.05
36945-3	13.62	20.79	5.98	.87	3.11	15.67
¼-blood.						
36901	9.79	16.10	3.91	.98	4.81	9.74
36888	10.61	18.09	4.87	.77	4.87	11.36
Common and braid.						
36911	6.89	19.14	4.89	1.03	6.39	11.82
36914	6.28	33.00	6.08	.88	6.10	13.69
36906	6.19	16.75	4.30	.84	3.15	10.92

COLORADO WOOLS.

36921-6 (½-blood)	10.51	18.68	4.14	.61	2.91	34.97
36946-7	7.19	18.17	4.52	.63	2.29	25.25

IDAHO WOOLS.

36921-8 (½-blood)	13.78	16.08	3.55	.83	2.89	32.09
36945-2	6.59	17.73	4.65	.82	2.92	17.18

MONTANA WOOLS.

36947-3 (fine)	12.23	20.81	6.40	.60	2.49	30.74
36963-5 (fine)	16.13	15.02	3.45	.57	2.56	31.33
36947-4 (½-blood)	12.55	20.98	5.59	.45	2.79	24.05
36963-6 (⅝-blood)	10.95	22.66	4.58	.73	1.73	28.09
36921-9 (⅜-blood)	10.54	33.02	9.48	1.09	4.22	19.90

WYOMING WOOLS.

36945-6	10.46	27.43	7.01	1.09	3.60	26.18
36947-2 (fine)	8.31	16.35	3.69	.46	1.93	47.31
36947-5 (½-blood)	9.45	17.65	4.69	.66	2.32	35.65

TEXAS WOOLS.

Sample.	Grease.	Water extract after removal of grease.	K_2O in water extract.	Nitrogen in water extract.	Moisture.	Ash.
	Per cent.	*Per cent.*	*Per cent*	*Per cent*	*Per cent.*	*Per cent.*
36962-3 (fine)	14.56	10.00	2.70	.28	3.11	19.44
36946-8 (fine)	12.79	11.76	3.45	.37	2.31	38.13
36639 (fine)	21.09	11.43	3.08	.44	5.91	23.18

MICHIGAN WOOLS.

36921-2 (low medium combing)	9.64	25.72	7.39	.77	5.24	15.69
36921-12 (⅜-blood)	10.04	20.48	5.13	1.17	3.55	13.18

MISCELLANEOUS WOOLS.

36946-4 (Territory)	13.92	14.99	4.19	0.51	2.53	38.73
36921-4 (fine and fine medium Territory)	12.78	20.80	5.94	.52	3.88	38.65
36946-9 (California)	12.76	13.41	3.55	.37	2.44	20.53
36945-5 (Utah)	8.18	10.13	2.83	.30	2.88	29.74
36921-7 (½-blood Canadian)	4.75	15.38	3.92	.53	4.58	14.92

PULLED WOOLS.

Armor's unwashed.						
36976 (L A)	10.36	4.79	0.23	0.25	3.00	5.75
36962-1 (AA)	7.59	3.24	.19	.17	3.92	17.91
36977 (A)	17.41	2.93	.27	.15	3.12	4.37
36962-4 (B)	12.67	2.82	.25	.17	3.88	3.74
36962-5 (C)	8.75	2.35	.14	.14	3.76	4.12
California.						
36978	13.11	3.27	.22	.21	2.38	10.05
South American.						
36962-7 (XX)	19.44	1.78	0.08	.16	2.83	19.82
36962-8 (X)	11.21	4.24	.17	.28	4.10	10.91
36962-6 (A)	9.46	3.32	.09	.21	3.49	9.17
36962-10 (B)	6.23	4.45	.71	.31	3.77	7.67
36962-9 (C)	5.14	5.15	.24	.37	3.34	5.45

SOUTH AMERICAN WOOLS.

36864 (½ bale)	5.50	8.86	2.56	0.20	2.60	8.98
36899 (½ bale)	6.62	8.94	2.43	.24	5.05	10.65
36912 (⅝ bale) Puntas Fleurs	10.38	14.38	3.73	.44	5.21	14.27
36921-10 (⅝ bale), Santa Cruz	7.65	7.22	1.36	.28	3.59	31.51
36946-2, Chilean	5.48	18.95	4.82	.73	4.30	16.69
36946-10, Montevideo	12.66	16.16	3.68	.76	2.41	11.72
36921-5 (½ bale), Montevideo	13.91	22.34	5.92	.71	4.06	15.19
36921-11 (50s)	10.39	15.68	2.99	.38	3.59	10.62

CAPE WOOLS—(FINE.)

No number	13.42	21.86	4.88	0.59	1.94	27.76
36559	14.37	17.58	3.95	.58	3.38	28.40
36900	12.69	17.78	4.87	.67	4.01	27.63
36980	24.37	10.40	2.17	.42	2.66	21.58
36946-5	19.44	17.65	4.86	.60	2.76	23.00
36945-1	12.98	21.49	4.49	.82	3.24	35.62

AUSTRALIAN WOOLS.

36557	17.77	15.86	3.63	0.66	4.79	17.74
36962-2	15.31	9.52	2.56	.17	2.77	15.84
36946-6	16.94	13.79	1.97	.58	2.26	15.30

NEW ZEALAND WOOLS.

36921-1 (½ blood)	14.41	13.64	3.60	0.49	3.52	7.59
36921-3 (X bred)	9.91	12.06	3.31	.52	4.20	9.76

The figures in the table do not represent scouring losses. All of the inorganic matter which is extracted by water and included in the figures for "water extract" is also contained in the ash, though as different compounds. This portion of the unscoured wool, therefore, would be counted twice if the figures given for each wool were added in an attempt to show scouring loss. Furthermore, the potash and nitrogen, both in combination, chiefly if not entirely, with organic matter are contained in and constitute a part of the water extract.

Therefore no effort should be made to calculate from these figures the scouring loss. The figures are intended simply to throw light on certain important constituents (grease, potash, and nitrogen) of unscoured wool and to show which part of the material that is not wool is soluble in water, with a view to its proper and economic disposal.

The foreign constituents, and consequently the actual wool in unscoured wool, vary between wide limits even in the same grade or class. Thus in Ohio delaine, a very greasy wool, grease varies from 17.8 per cent to 41.9 per cent, water extract from 6.3 per cent to 17.1 per cent, potash (K_2O) from 1.1 per cent to 4.7 per cent, nitrogen from 0.3 per cent to 0.8 per cent, moisture 2.5 per cent to 4.6 per cent, ash 14.9 per cent to 38.7 per cent. Since the air in the laboratory is comparatively dry in the winter, the figures for moisture are lower than would usually be found in most mills.

There is very little potash in pulled and washed wools, and there is some indication that the lower grade wools contain more potash than the fine grades. Low grease, unscoured wools contain more potash than high-grease wools. The constituents soluble in water show a tendency to be higher in the low-grease than in the high-grease wools.

Cooperation of Industry Desired.

The specialists desire to secure the cooperation of wool growers, dealers, and scourers in their work on the recovery and utilization of wool-scouring wastes. Those who may have problems in this line or who desire to improve their scouring practice, or to undertake the recovery of any of the constituents of wool-scouring wastes, should communicate with the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

Hogs have been reduced relatively about 5 per cent during the first four months of this year on the farms of the United States as compared with the trend during the first four months of 1919, reports the Bureau of Crop Estimates, and there has been a relative reduction of 6 per cent in cattle during these four months of this year in comparison with the same time last year.

At Times Sense of Smell and Taste Fails--- Scientists Devise Tests for Frozen Eggs

Technical methods for the examination of frozen whole eggs, frozen yolky mixtures, frozen egg yolk, and frozen white of egg, in order to determine with certainty those that are suitable for food, have been standardized and published by the specialists of the Bureau of Chemistry, United States Department of Agriculture, who have made an extended investigation of the best methods for handling eggs and egg products from the point of production through the channels of commerce to the consumer.

Many Shells Arrive Cracked.

Large quantities of shell eggs arrive at buying centers in a cracked or broken condition, or otherwise unsuitable for sale as whole-shell eggs. It is the commercial practice to break such of these eggs as may be fit for food and freeze the yolks and whites either together or separately in large or small cans for use by commercial bakers and large hotels. So extensive has this business become that 19,286,396 pounds of frozen-egg products were held in storage on January 1, 1920. Eggs which are unsuitable for food should be separated out for technical purposes, such as tanning. Unless care is taken in separating the good eggs from the partly spoiled eggs, some off-grade eggs are likely to get into the cans with the good eggs. If the proportion of spoiled eggs present in a mixture is appreciable, they may be detected by the sense of smell and taste, but if the proportion is comparatively small, chemical, bacteriological, and microscopical methods must be employed. Contamination may also result from insanitary practices in handling the utensils and eggs.

The specialists have developed reliable methods for the chemical, bacteriological, and miscroscopical examination of egg products, which have been frozen in order that spoilage, or the organisms which produce it, or the use of spoiled eggs in a product, may be detected with certainty. The methods can be used only by trained chemists and bacteriologists, since they are highly technical. The bulletin will be of interest to Federal, State, and municipal food-control officials and to commercial bacteriologists and chemists who are called upon to examine frozen-egg products.

The results of the investigation are published in United States Department of Agriculture Bulletin No. 846, entitled "Examination of frozen-egg products and interpretation of results," which may be had upon application to the department, Washington, D. C.

Other bulletins of interest to those engaged in the egg industry, giving the results of investigations by the Bureau of Chemistry, follows: Department Bulletin 51, "A bacteriological and chemical study of commercial eggs in the producing districts of the central West"; Department Bulletin 224, "A study of the preparation of frozen and dried eggs in the producing section"; Department Bulletin 391, "Accuracy in commercial grading of opened eggs"; Department Bulletin 663, "The installation and equipment of an egg-breaking plant." Any of these publications may be obtained upon application to the department at Washington.

COST OF GROWING 1919 WHEAT AVERAGED $2.15 A BUSHEL

(*Continued from page 1.*)

cost of $2.15. At a price covering the average cost plus 10 per cent, 75 per cent of the crop would be covered, but 40 per cent of the growers would still fail to break even.

The variation in net cost per bushel for all farms—both spring and winter wheat—is shown in the accompanying table. Copies of the preliminary report on the cost studies, which tells how the work was done and gives results in some detail, may be obtained from the Office of Farm Management.

CANNING POWDERS SHOULD NOT BE USED IN CANNING

In some communities there is a widespread use of canning powder. Both boric and salicylic acid are bought from druggists for this purpose. Large quantities of these acids are also sold at a high price under fanciful canning compound names.

The United States Department of Agriculture warns against the use of any preserving powder or canning compound. Their use encourages careless and uncleanly work, and their excessive use may be attended with serious effects upon digestion and health. It is entirely practicable to "put up" fruits and vegetables so that they will keep indefinitely by processing the products with heat. There is no reason for taking the risk of using canning powders.

The person who doesn't save goes without worth-while things to-day, and will go without them to-morrow. The person who saves has everything he needs to-day, and will have still more to-morrow. Buy War Savings Stamps.

VARIATION IN NET COST PER BUSHEL OF SPRING AND WINTER WHEAT, 1919, 481 FARMS.

Net cost per bushel.	Number of farms.	Cumulative per cent of number of farms.	Acres.		Cumulative per cent of harvested acreage.	Production, bushels.	Cumulative production.	Cumulative per cent of production.
			Seeded.	Harvested.				
$1.00	2	0.4	770	770	0.9	14,560	14,560	1.5
1.10	4	1.2	950	950	2.0	19,212	33,772	3.4
1.20	5	2.2	480	480	2.5	8,660	42,432	4.3
1.30	9	4.0	2,144	2,144	5.0	40,692	83,124	8.4
1.40	10	6.1	2,152	2,137	7.5	41,458	124,582	12.6
1.50	21	10.5	3,199	3,171	11.2	61,642	186,224	18.8
1.60	21	14.9	3,723	3,673	15.5	60,526	246,750	24.9
1.70	26	20.3	4,696	4,649	20.9	69,230	315,980	31.8
1.80	25	25.5	5,254	5,169	26.9	78,691	394,671	39.7
1.90	38	33.4	5,662	5,618	33.5	86,283	480,954	48.3
2.00	33	40.3	5,377	5,192	39.6	76,143	557,097	55.9
2.10	30	46.6	4,027	3,942	44.2	48,895	605,992	60.8
2.20	25	51.8	3,677	3,611	48.4	42,850	648,842	65.1
2.30	21	56.2	6,312	6,202	55.6	65,250	714,092	71.6
2.40	22	60.8	3,524	3,491	59.7	35,056	749,148	75.1
2.50	19	64.8	3,407	3,262	63.5	33,558	782,706	78.5
2.60	18	68.6	4,988	4,818	69.1	41,045	823,751	82.6
2.70	23	73.4	4,302	4,137	73.9	37,599	861,350	86.4
2.80	13	76.1	1,584	1,556	75.7	13,678	875,028	87.8
2.90	9	78.0	1,910	1,910	77.9	15,804	890,852	89.4
3.00	9	79.9	1,235	1,185	79.3	9,263	900,095	90.3
3.10	7	81.4	990	925	80.4	7,779	907,874	91.1
3.20	5	82.4	1,010	930	81.5	6,241	914,115	91.7
3.30	8	84.1	1,729	1,638	83.4	11,053	925,168	92.8
3.40	6	85.4	1,510	1,485	85.1	9,726	934,894	93.9
3.50	8	87.1	1,730	1,705	87.1	10,201	945,095	94.9
3.60	5	88.1	880	880	88.1	5,330	950,425	95.4
3.70	4	88.9	521	521	88.7	3,185	953,610	95.7
3.80	5	89.9	1,210	1,162	90.1	6,561	960,171	96.4
3.90	6	91.2	760	735	91.0	4,206	964,377	96.8
4.00	.....	91.2	.....	.....	91.0	.....	.....	96.8
4.10	3	91.8	484	440	91.5	2,983	967,360	97.1
4.20	4	92.6	605	605	92.2	3,455	970,815	97.4
4.30	3	93.2	530	530	92.8	2,641	973,456	97.7
4.40	3	93.8	630	630	93.5	3,170	976,626	98.0
4.50	3	94.4	760	760	94.4	4,402	981,028	98.4
4.60	3	95.0	410	405	94.9	1,806	982,834	98.6
4.70	3	95.6	500	500	95.5	1,598	984,432	98.8
4.80	.....	95.6	.....	.....	95.5	.....	.....	98.8
4.90	2	96.0	171	151	95.7	970	985,402	98.9
5.00	2	96.4	430	280	96.0	1,567	986,969	99.1

Eighteen records representing 0.9 per cent of the production had costs exceeding $5. Average cost, $2.15.

Weekly News Letter

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Edwy B. Reid, Chief

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The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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SEVERE INJURY SUFFERED BY EVERGREEN TREES LAST WINTER

The past winter has been very severe on evergreens in many parts of the Middle Atlantic States. The injury has not been confined entirely to transplanted trees as native red cedars and other species have been killed in places, but transplanted trees usually have a shallow confined root system which makes them more susceptible to winter killing.

The extent of the winter injury to the evergreens varies from the browning or death of the tips of the needles to the death of fairly large trees, which have been planted 10 to 15 years. Trees of the same kind growing together in rows often show considerable variation in the amount of injury; thus one tree will be entirely killed, another will lose its leaves, while a third tree will be apparently unharmed. Different kinds of trees also show considerable variation in their resistance to winter injury; for instance, arbor vitæ trees as a class have suffered severely while pines have come through with very little injury. Trees in exposed locations have been much more severely injured than those protected by other trees or by buildings. The injury as a general rule has been more severe on western exposures and on the west side of individual trees.

Most of the evergreens which lost only parts of their leaves are putting out vigorous new growth, and their value as ornamentals will not, in the long run, be seriously impaired. Some of the hemlocks and holly trees which lost all of their leaves are also rapidly recovering. On many trees, where the ends of the twigs and the more exposed branches were killed, new growth is developing further back towards the main stem.

It is best to prune off the dead twigs quite close back to the new live sprouts, as any dying portion left simply serves as a breeding place for fungi and insects which later may cause trouble. All injured portions of the tree which show a darkened or brown inner bark and cambium should be removed. It is safe to plant new trees in the same holes from which the dead ones were removed, as the trees have not been killed by a fungus disease.

DANGER OF EXPLOSIVE DUSTS SHOWN BY MOTION PICTURES

Why dust is dangerous is shown conclusively in a one-reel motion picture, "Explosive dusts," recently issued by the United States Department of Agriculture, in cooperation with the United States Grain Corporation. The picture is a popular presentation of a subject that was covered more technically and at greater length in a previous two-reel subject, "Grain-dust explosions in mills and elevators," which traveled all over the United States and into Canada and did yeoman service in helping to stop the disasters that threatened America's bread supply during the war.

The old two-reel picture is being retained for the use of workers in the Bureau of Chemistry. The new one-reeler is especially designed for showing in high schools and other scholastic institutions, as well as before grain and milling men, fire prevention and insurance associations, and others directly interested in the subject.

Requests for the loan of the film should be made through some field worker of the Department of Agriculture, or they may be sent directly to the department. Arrangements also have been made enabling outside persons and institutions to buy prints of the film at the cost of manufacture.

COMMON COURSE OF MARKETS DEPENDS LARGELY ON SUPPLY

The man engaged in either selling or buying perishable produce will do well to familiarize himself with the usual course of the market in such lines during a season. The natural market course, according to marketing experts of the United States Department of Agriculture, is somewhat as follows:

It starts high with active movement even for inferior stock because the demand has the sharp edge of novelty and appetite. The price gradually declines and poor stock becomes harder to sell as the supply increases. Lowest prices arrive soon after the heaviest shipments begin, and a glut may occur, especially if many sections are shipping at once and there is much poor stock. Then, with a decreasing supply, prices advance, sometimes recovering much of the early decline but usually not reaching the opening prices because demand is far less keen at the end of a long season. If the last of the shipments are inferior, as happens frequently with many perishable crops, the season may close at or near bottom prices.

The common or natural market developments do not always take place as might be expected. Quite frequently superior quality of the main crop or absence of general competition will bring higher prices in mid-season. Unexpected shortage may cause the reserve stock in storage to sell at high prices at the close of the season, especially the less perishable crops like potatoes, onions, apples, cabbage, etc. Careful study of crop, shortage, supply, and shipment should enable a fairly good judgment to be made of the outcome. However, quickly perishable short season crops like strawberries or melons are very irregular, so it is difficult to form a reliable market judgment of them.

FARMERS REQUIRE ACCURATE DATA ON MARKET CONDITIONS

Traveling by faith rather than by sight has sometimes been recommended as wise policy, but produce growers used to find it frequently and mightily disastrous when they followed it perforce before the establishment of the Crop and Market Reporting Service of the United States Department of Agriculture. Of course, a few of them are still following the faith system of growing and marketing because they have not seen fit to used the eyes furnished them by the Government reporting service, and these are still planting, gathering, and marketing at random. But the majority are looking around and ahead, seeing what other sections are doing, finding where any shortage or surplus is likely to be produced, ascertaining special advantages or disadvantages in consuming centers, and generally getting a forecast of the market from crop and other conditions the country over. Thus the more farsighted southern potato growers take into account the volume and probable movement of the northern crop and the amount of the old crop likely to be left over until spring. Even the northern growers may put in a late acreage and top-dress the crop if the general situation suggests a shortage caused by a reduced acreage or by a hard spring frost in parts of the northern territory.

THE FARM WOMAN TELLS HER OWN STORY

Survey of 10,000 Homes Shows Serious Wastage of Woman Power in Rural America—Remedies for the Disorder

By FLORENCE E. WARD,
In Charge, Extension Work with Women, Office of Extension Work, North and West.

BY a singular anomaly the Census places farm women with other home makers in a class of those having "no occupation." The testimony of the 10,000 farm women who participated in a recently completed farm-home survey would indicate that the farm woman might be better described as one having ceaseless occupation, so varied and insistent are the demands made upon her.

The Department of Agriculture, in its desire to extend to farm women the most practical and acceptable assistance possible, undertook, in cooperation with the State agricultural colleges and farm bureaus, through this survey to learn from farm women themselves what their real problems were, so that the cooperative extension service of the Department of Agriculture and State colleges of agriculture might be guided in doing their part toward the solving of those problems.

How the Study Was Made.

It may be asked to what extent the homes surveyed are typical of farming conditions over the 33 Northern and Western States. It was requested that State colleges in selecting the counties to be surveyed carry out the following plan: (1) Choose the most typical farming counties of each State; (2) take one or more of the most typical farming communities in each county; (3) secure a record from every farm home in the locality selected, irrespective of size, farm tenure, prosperity of farm family, or other conditions; (4) select, if possible, a locality containing from 35 to 50 homes; and (5) include in the survey none but bona fide farm homes. A study of the returns shows that these requests were fairly well complied with.

If we follow the average woman of the survey through one day's routine, some conception will be gained of the vitality and skill called into play by her duties as cook, seamstress, laundress, nurse, and factor in community life, as well as producer of dairy, garden, and poultry products.

Compared with even 10 years ago the returns of the survey show a big change for the better in the conditions existing in the farm homes of this country; 32 per cent now have running water in the house, 22 per cent have power to use in lightening their household tasks, 95 per cent have screened windows and doors, 95 per cent have sewing machines, 72 per cent have telephones, 62 per cent have automobiles, 24 per cent have vacuum cleaners, 47 per cent have carpet sweepers, 21 per cent have some kind of a lighting system, and 26 per cent have gas or electric irons. Many women are still without any or all of these conveniences and when their duties as producers of garden, dairy, and poultry products is added to the housework the burden is more than the strength of the average woman can bear long.

One Day With the Farm Woman.

The following description of the working schedule of a large percentage of farm women, although true to the statements of the survey, may give a somewhat exaggerated impression of hardship, unless one keeps in mind the motive back of the work of wife and mother and the compensations that come to every home maker in her round of activities for the happiness and comfort of her family. It should be noted also that the various duties mentioned as a possible part of the day's work would not all be included in any one day.

It is sunrise on a summer morning and a full day's work is facing the farm woman. Of those who answered the questionnaire about 50 per cent are up at 5 o'clock. All must rise early as the average working day is 13.12 hours at this season of the year. The men are on their way to the barn to feed the stock. Sixty-one per cent of the women after lighting the kitchen fire must go to the pump or spring, an average of 40 feet distant, to bring water for the morning meal. The tea kettle filled, the fire burning, and the hearth brushed, 81 per cent may enter the poultry yard to feed the birds that are lustily calling for their breakfast. About 14 per cent of the women report hired help for about three and one-half months in the year. They may delegate the poultry feeding to the helper or, while 36 per cent of the women take their pails and go to the barn to assist in milking the half dozen cows (the average number), the helper may be setting the breakfast table. This meal is enjoyed by a family averaging five persons.

She Turns to After-Breakfast Tasks.

Breakfast over, the dishwashing is to be done; over 8,000 of the women answering include in this work the washing of the milk pails and 5,703 wash the separators. If there are children in the home, a pause is made in the household tasks to get them off to school; lunch must be prepared, for the district school is on an average 1½ miles distant.

The farm woman turns again to her routine duties. There is a seven-room house (average) to be set in order. A covering on the kitchen floor in 54 per cent of the homes reduces despised scrubbing. Rugs and carpets require brushing. To aid in this 24 per cent of the women have vacuum cleaners.

The beds are made and at least one-half hour is required for filling, trimming, and cleaning the lamps in the 79 per cent of homes where lamps are used.

It is now time for some special task of the day. Ninety-four per cent of the women make part or all of the family bread, so it may be baking day; or it may be churning day, for the 60 per cent who do this work; or it may be the day for the weekly washing, done at home in 96 cases out of 100. For the 43 per cent having no washing machines, the tub, board, and boiler are brought into use, and where water must be carried, unless the man of the family brings it in, the woman must pump and carry it pail after pail, as required. Running water is found in only 32 per cent of these homes. In 48 per cent water is obtainable by some arrangement in the kitchen.

After dinner has been prepared, served, and the wishes washed, the overenergetic woman may attempt some of the weekly ironing. In that event, 26 per cent will have a gas or electric iron to accomplish the task.

Part of the afternoon may be considered a time of leisure, with nothing more arduous to do than the family mending, which occupies an average of three and a half hours a week, or, as 92 per cent of the women do some or all of the family

sewing, part of the afternoon may be given to that duty.

The program for to-day may not include the ironing, baking, or mending, but rather a trip to town, about 5 miles distant, to market the eggs and butter and to bring back groceries and other supplies. An automobile is part of the equipment on 62 per cent of the farms reporting.

The End of a Busy Day.

It may be the growing season and the garden requires attention; 56 per cent of the women spend some time weeding, hoeing, and tending the vegetable and flower gardens.

It may be that by this time a child has returned from school to claim some of mother's attention. Mother also recalls a community gathering to be held that afternoon, but what single task could have been put aside to enjoy an hour with her neighbors?

"The day is dying in the west and the lowing herd" is moving toward the barnyard. So is the farm woman, who again takes her pail and spends some time in milking. The eggs from an average of 90 hens must be gathered; a pleasant duty, no doubt, for the 16 per cent of women who have the egg money for their personal use.

It is time for the evening meal. Perhaps only one man returns hungry from the field, but there may be five or six, depending on the time of year and whether the silo is to be filled, the grain thrashed, or the corn cut—work which requires an average of five additional men for at least six weeks in the year on 80 per cent of the 6,083 farms reporting. The supper dishes are again augmented by the milk pails and separator. In addition to these varied household tasks 24 per cent of the women reporting spend an average of six weeks in the year assisting with some part of the field work, and 25 per cent help to bed and feed the live stock.

Setting the sponge for to-morrow's bread baking may be among the last of the day's duties, or it may be that those who keep farm accounts (32 per cent) and home accounts (30 per cent) will get out their daybooks and ledgers and check up expenditures.

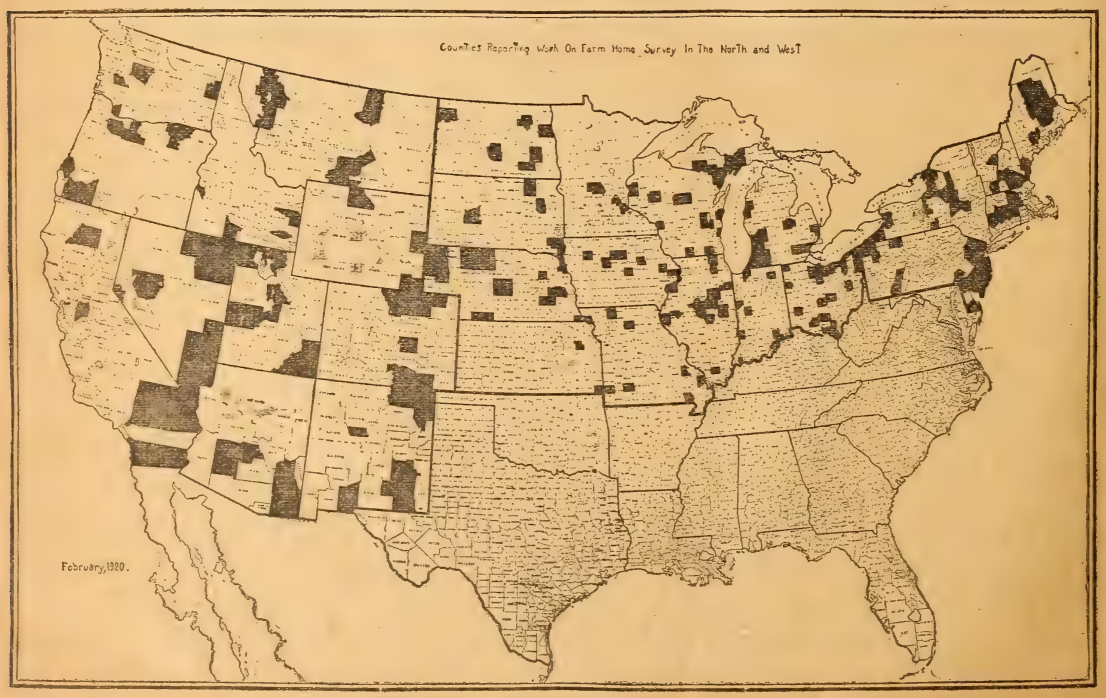
Small wonder is it when this is done if the average farm woman leaves the tempting new book or magazine unopened, postpones writing the long-delayed letter, or even forgets the bedtime story or confidence of small son or daughter as she calls this day finished, in which labor has been so sparingly balanced with leisure and recreation.

Economic Importance of the Farm Woman.

The loss to family and community by the waste of woman's energy here described could be prevented by a reasonable amount of planning and well-directed investment in modern equipment. There is much talk nowadays of the economic importance of a contented rural population willing to stay on the land and help to build it up. Perhaps the greatest factor in bringing this about will be the healthy, alert, and expert home maker, who will see to it that a part of the increased income from the farm is directed toward the improvement of the home as a means of contentment and stimuli for farm work. Economists of our country, seeing the steady migration cityward, recognizing the dearth of farm labor as a limiting factor in production, and connecting this with the isolation and convenience of rural living conditions, are pointing out that where these exist it is doubtful business policy to use increased income to buy more land with heavy interest charges against it rather than to spend part of that income in raising standards of living so that farm women may find contentment in comfortable, efficient houses, and young people will not necessarily go to the cities in search of attractive living conditions and amusement.

Hence the interest of the Department of Agriculture in the returns from these studies as to labor, working equipment, and compensations of the farm woman is as practical as its interest in farm studies

A GEOGRAPHICAL PICTURE OF THE COUNTIES COVERED IN THE SURVEY.



regarding the labor, machinery, and crop returns of the farmer and for the same general reason.

Some Facts from the Survey.

A walk-out might be forshadowed in some industries where love and service were not the ruling motives by conditions brought out in table 1, which show that the average working day, summer and winter, for over 9,000 farm women is 11.3 hours, and that 87 per cent of 8,773 women report no regular vacation during the year.

TABLE 1.

	Summer.		Winter.		Women having vacations.	
	Work.	Rest.	Work.	Rest.	Percentage.	Length.
	Hrs.	*Hrs.*	*Hrs.*	*Hrs.*		*Days.*
Eastern	13.0	1.6	10.7	2.4	13	12.4
Central	13.2	1.5	10.5	2.3	12	10.85
Western	13.0	1.8	10.2	2.4	13	16.4
Average	13.12	1.8	10.2	2.4	13	11.4
Number of records	9,530	8,360	9,164	8,164	8,773	1,241

The amount of time spent in household tasks could be reduced and some of the tasks eliminated if the principles of modern business were applied, and the labor and time spent on others would be lessened if the farmhouse were as well equipped as the up-to-date barn. The farmer usually considers modern farm equipment as so much currency with which to buy efficiency.

TABLE II.

	Rooms to care for.	Stoves to care for.	Kerosene lamps.	Water to carry.	
				Percentage.	Distance.
			P. ct.		*Feet.*
Eastern	9.7	1.35	79	54	23
Central	7.7	1.3	79	68	41
Western	5.3	2.5	77	57	65
Average	7.8	1.6	79	61	39
Number of records	9,871	9,210	9,830	6,511	6,708

	Wash and iron.	Sewing.	Daily mending.	Bread baking.
	Per ct.	*Per ct.*	*Hours.*	*Per ct.*
Eastern	94	86	0.5	89
Central	97	94	.6	78
Western	97	95	.5	97
Average	96	92	.6	94
Number of records	9,767	9,721	8,001	9,614

The installation of a modern lighting system would release some time in the 79 per cent of 9,830 homes where kerosene lamps are used. The initial cost would be small when weighed against convenience and comfort.

Keeping the Home Fires Burning.

Nine thousand of the seven-room houses (average) are supplied with from one to two stoves, not counting the kitchen range. These add to the daily work of 54 per cent of the rural women, who when heat is needed not only carry into the house the coal or wood to feed these stoves but, according to their statements, kindle the fires in the morning and keep the home fires burning throughout the day.

As power on the farm is the greatest of time and labor savers for the farmer, so power in the home is the greatest of boons to the housewife. Of the total number answering the question, 48 per cent reported power for operating farm machinery. When we consider that it is a simple matter to connect the engine used at the farm with household equipment it seems a singular fact that but 22 per cent of the farm homes reporting have this advantage. Power for such frequently recurring tasks as churning and using the washing machine would greatly relieve the farm woman and give her a satisfying sense of modern efficiency.

Running Water in Few Farm Homes.

It is frequently stated that running water is the pivot upon which much modern convenience depends. Of those reporting but 32 per cent of the homes have running water; that means water drawn from a faucet, and implies that water may be in other rooms besides the kitchen. Forty-eight per cent of the homes have water in the kitchen only; this means a pump or possibly a rubber hose attached to a barrel located inside or outside of the kitchen. However, in 60 per cent of the homes there is a sink with drain, even though in many cases the water used at the sink has to be carried into the house by the pailful. In 61 per cent of the homes into which the water must be carried, this work is done by women. Of 6,784 women answering the question, 20 per cent have bathrooms in their homes. The State ranking highest reported 48 per cent, and the one ranking lowest 3 per cent of homes having bathtubs.

The Dairy.

Thirty-five per cent of the farm women reporting make butter to sell. Since butter making either for home use or for sale adds one item to the farm woman's overcrowded schedule, it would seem to be justified only when a good creamery is not within reach. Experts advise that normally the best utilization of milk is to send surplus to a creamery, after reserving an ample supply for home use;

TABLE III.

	Running water.	Power machinery.	Water in kitchen.	Sink and drain.	Washing machine.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Eastern	39	12	67	80	52
Central	24	29	47	52	67
Western	36	22	18	44	49
Average	32	22	48	60	57
Number of records	9,320	9,080	6,949	9,334	9,472

	Carpet sweeper.	Sewing machines.	Screened windows and doors.	Outdoor toilet.	Bathtub.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Eastern	58	94	95	87	21
Central	46	95	98	93	18
Western	29	95	91	86	23
Average	47	95	96	90	20
Number of records	9,513	9,560	9,667	9,580	6,784

TABLE IV.

	Help with live stock.	Help in field.	Number weeks per year.	Caring for gardens.	Keeping farm accounts.	Keeping home accounts.
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*	*Per cent.*
Eastern	24	27	8.5	41	28	23
Central	26	22	4.9	67	34	33
Western	27	23	6.7	57	33	34
Average	25	24	6.7	56	32	30
Number of records	9,365	9,179	2,196	9,526	8,730	8,750

as the income from the dairy herd is usually greater when the produce is handled by the creamery than when butter is made at home.

TABLE V.

	Cows per farm.	Women help milk.	Women wash pails.	Washing separator.
		Per ct.	*Per ct.*	*Per ct.*
Eastern	8.04	24	85	50
Central	6.79	45	93	76
Western	4.84	37	85	63
Average	6.77	36	88	65
Number of record	9,570	9,342	9,361	8,817

	Butter making.	Keeping records.	Selling butter.	Having butter money.
	Per ct.	*Per ct.*	*Per ct.*	*Per ct.*
Eastern	43	22	31	9
Central	66	30	33	9
Western	74	36	33	16
Average	60	29	33	11
Number of record	9,190	6,356	8,498	5,354

TABLE VI.

	Women caring for poultry.	Average size of flock.	Number having poultry money for own use.	Number having egg money.	Number keeping records.
	Per ct.		*Per ct.*	*Per ct.*	*Per ct.*
Eastern	69	90	13	16	38
Central	89	102	25	16	51
Western	84	71	21	17	41
Average	81	90	22	16	45
Number of record	9,477	9,742	8,312	8,324	8,628

Community Life of Homes in Survey.

The average distance of 5.9 miles to the nearest high school, 2.9 miles to the nearest church, and 4.8 miles to the nearest market, shows that country people are far enough from the center of trade, social, and religious activities to tempt the spirit of individualism and to put their neighborliness and piety to the test. It points to the importance of pooling individual interest in common community enterprises, such as canning kitchens, buying centers, markets, laundries, salvage shops, and sewing rooms, as well as social centers for lectures, community sings, dramatics, and games, which, if properly handled, break down the isolation of country homes and make possible the accomplishment of many otherwise difficult tasks with a saving of time and labor for the housewife, and often an opportunity for increased income as well as recreation for the entire family.

TABLE VII.

	Miles to district school.	Miles to high school.	Miles to church.	Miles to market.	Miles to family doctor.
Eastern	1.21	4.27	1.93	3.10	3.46
Central	1.59	5.09	2.61	4.58	4.95
Western	1.70	9.64	5.11	7.69	10.41
Average	1.51	5.91	2.95	4.82	5.70
Number of records	9,627	9,767	9,726	9,708	9,837

	Miles nearest hospital.	Miles nearest trained nurse.	Family use auto.	Homes having phones.
			Per cent.	*Per cent.*
Eastern	12.82	9.87	48	67
Central	12.71	11.81	73	85
Western	17.67	15.52	62	56
Average	13.91	11.91	2	72
Number of records	9,605	9,463	9,545	9,748

The automobile contributes materially to community life by reducing the distance factor. An average of 62 per cent of farms of the 9,545 reporting own cars, with the largest (75 per cent) in the Middle West. The telephone also helps to overcome distance in 72 per cent of the 9,742 homes reporting. Again the Central West shows an advance with 85 per cent of the total number reporting.

The Rural Health Problem.

Fortunate is the farm family whose members know the rudiments of caring for the sick and have an emergency kit fitted up and at hand.

According to the figures in the survey, the average farm home is more than 5½ miles from the family doctor, nearly 12 miles from a trained nurse, and about 14 miles from a hospital. These distances are shortest in the eastern section and longest in the western section. This means that even though the farm home be provided with an automobile and a telephone, the farm family may be obliged to act unaided in case of sickness, child birth, or serious accident, and that its members perhaps need more than ordinary training to prepare them for such exigencies.

Along with proper nutrition, clothing, and exercise, sanitary conditions have an important bearing on the health of children and adults on the farm. On the basis of 9,580 reports, 90 per cent of rural homes still have an outdoor toilet. Only 20 per cent (6,784 answering) have bathtubs, and this does not necessarily imply hot water in connection. Almost universally the houses are screened, as indicated by the 96 per cent of 9,667 homes reporting. The desirable screened kitchen porch is found, however, in but 32 per cent of the 9,502 homes reporting.

Few Children in Rural Homes.

Among the surprises in tabulating the surveys was the small number of children in farm homes. 7,467 reports show an average of but 1.18 under 10 years of age for each home and but 0.89 between 10 and 16 years of age. It may be of interest here to note that the number of children in rural homes of the East falls below the country-wide average, the report showing 0.9 children under 10 years and 0.77 children between 10 and 16 years, on a basis of 2,573 reports, while that in the western section is the highest with 1.4 children under 10 years (1,734 reports) and 0.97 children between 10 and 16 years (1,823 reports).

In any event child life is at a premium in rural districts, and for the future of our agriculture, if for no other reason, an intelligent effort should be made and as much money expended to safeguard the child crop on the farms as to safeguard other crops that have to do with building up the farmstead.

What the home demonstration agents under the supervision of the United States Department of Agriculture and the State colleges are doing to improve some of these conditions will be told in another article by Miss Ward to be printed next week.

METHODS FOR THE CONTROL OF CHRYSANTHEMUM MIDGE

The chrysanthemum midge entered the United States from Europe a few years ago and is now an established greenhouse pest, says the United States Department of Agriculture. It was first reported in this country from Michigan and is now known to be present in more than 20 States and in Canada. It is regarded as one of the most important pests to be reckoned with by chrysanthemum growers.

While principally a greenhouse pest, it occurs on outdoor plants even as far north as Ottawa, Canada. The injury to badly infested plants is such as to destroy their value for commercial purposes. In the tender portions of the plant are laid the eggs from which tiny maggots hatch. The maggots then bore their way into the plant tissues, thereby causing galls. Apparently this midge was brought to America without its quota of parasites and it is not yet certain that native parasites of gall midge fauna are preying upon it effectively.

Control Measures Worked Out.

Many experiments have been conducted by the specialists of the department in working out control measures. The results are summarized as follows in Department Bulletin No. 833, just issued:

"From the life history, as well as from the experimental data thus far submitted, it is clear that certain points must be kept in mind to secure the best practical results. First, there are always several generations present in greenhouses during the spring and fall occurrences; second, the adults emerge and mate during the very early morning hours, and egg laying quickly follows; third, preliminary control experiments show that the egg stage may be controlled by means of spraying or dipping the cuttings or plants; fourth, it has been demonstrated that the adult can be killed easily at the time of emergence by consistent spraying; fifth, fumigation experiments in a commercial house proved that the adult is easily killed by fumigating either with nicotine papers or hydrocyanic-acid gas; sixth, experiments applicable to general propagation practices show conclusively that such measures offer a reasonable safeguard and protection against doubtful stock and infested material without injury to the plants.

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Miss C. E. Sherman.

Weekly News Letter

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RENEWS CONFIDENCE IN WOOL TRADE BY LOANS TO GROWERS

Federal Reserve Board Adopts Financing Plan to Prevent Serious Losses.

Grower May Now Ship Product to Market and Obtain Loan on Bill of Lading—Reserve Banks Advised of Plan.

The Federal Reserve Board has restored confidence in the wool industry by suggesting a plan for financing the woolgrowers during the present emergency. By advance arrangement with the Federal Reserve Board, woolgrowers, bankers in the wool-producing sections and eastern wool markets, wool dealers, warehouse men, manufacturers, and others interested in the wool trade, held an all-day session with the Federal Reserve Board yesterday. The condition of the wool market caused by the recent cessation of purchases of raw wool was laid before the board, and a full discussion was had of various plans for financing the industry until normal buying operations are resumed. Unlike most other crops, wool is marketed in the spring and early summer, and the marketing conditions prevailing during the past month have threatened great losses to woolgrowers which might be disastrous. Such a condition, if it developed, might cause serious sacrifice of sheep on farm and range and result in reduced supplies of wool and mutton in future years. It was clearly shown that there was no disposition on the part of anyone to maintain artificial prices, but simply to make arrangements by which the temporary interruption of the wool market would be removed and normal marketing conditions restored.

Board Makes Statement.

The plan of action finally arrived at was adopted as a more simple and satisfactory way of dealing with the situation than the cotton-loan plan of 1914 which had been suggested. At the termination of a conference between the board and a subcommittee, consisting of bankers thoroughly familiar with the entire situation, the board authorized the following statement:

"A wool grower may ship his wool to one of the usual points of distribution, obtaining from the railroad a bill of lading for the shipment; the grower may then draw a draft against his bank for such an amount as may be agreed upon by the grower and the bank, secured by the bill of lading. The Federal reserve act authorizes any member bank to accept a draft secured in this manner at the time of acceptance, provided that the draft matures in not more than six months from the time of acceptance. After acceptance such a draft bearing the indorsement of a member bank is eligible for rediscount or purchase by a Federal reserve bank, provided that it has a maturity of not more than three months from the date of rediscount or purchase.

"It was suggested that the Federal Reserve Board communicate with the Federal reserve banks, pointing out that shipments of wool to points of distribu-

(*Continued on page 7.*)

DON'T TAKE A CHANCE WITH FIRE.

"It never pays to take a chance with fire," says a circular issued by the Forest Service, United States Department of Agriculture, in its campaign against forest fires. "If you have got to gamble take a 'flyer' on the stock market or play the ponies, but don't take a chance on fire."

"Every thousand feet of green timber near your home is worth at least $10 in wages to you and your neighbors, besides its stumpage value to its owner. If it is on national forest land you are part owner, and if it is destroyed by fire you lose both values."

"Burned timber pays no wages," the circular says. "The prosperity and development of your locality is going to depend upon keeping that timber green.

"Don't take a chance with fire yourself, and don't let your neighbor do it. When you burn brush take every precaution to obey the law and see that your neighbor does. Remember that your home and his can go up in smoke from just one piece of carelessness.

"The biggest fires in history were started by those who didn't think the woods would burn. Be as careful of fire as you are of powder; it's just as dangerous."

LACK OF SUGAR SHOULD CAUSE NO CURTAILMENT IN CANNING

May Be Necessary to Can All or Part of Fruits Without Sugar.

By Time Canned Fruits Are Used Next Winter Sugar Will Be More Plentiful, It Is Expected—Much Sugar Hoarded.

It will be wisdom on the part of housekeepers to can the usual amount of fruits and vegetables this year, even if part or all of the fruit must be canned without sugar, according to a statement issued by the United States Department of Agriculture.

From all present indications, sugar will be more abundant next winter, when the fruit will be used on the table, the department says. There will apparently be an increased acreage of both cane and beet sugar this year in the United States, Cuba, and in other countries in the Northern Hemisphere. The rise in the price of sugar has encouraged increased plantings of cane and beets.

No Shortage in Domestic Supplies.

In spite of a world shortage of sugar and a decrease of 400,000,000 pounds in domestic production, there has been used or hoarded during the current year in the United States 15 per cent more sugar than in former years. In fact, a greater supply of sugar than ever before has been handled in this country during the past few months, with net imports 25 per cent, or over 1,000,000,000 pounds, greater than in any previous period. It is obvious, therefore, that there has been no actual sugar shortage here this year. The difficulties encountered have arisen from the inability of the consumer to secure his share of the supply. Unless enormously increased amounts have been consumed, the trouble must be laid to hoarding, and it is very evident that large quantities are being held for future use both by housewives and commercial concerns.

During the past 50 years the consumption of sugar in the United States has steadily increased, at an average annual rate of 1 pound per year, until in the last

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few years the average yearly per capita consumption for all purposes is between 85 and 90 pounds. This compares with a per capita consumption of 58.9 pounds in 1899. The increased consumption of sugar by the soft-drink, candy, and ice-cream industries during recent years has helped raise the total average, but to what extent is not known.

ALFALFA ACREAGE GREATER THAN ANY OTHER HAY GRASS

Alfalfa now has an acreage greater than that of any other legume or grass cut for hay, not growing in combination with another. Of the total tame hay acreage in 1919, alfalfa occupied 21.1 per cent, timothy and clover mixed 18.2 per cent, timothy 15.9 per cent, clover 12.3 per cent, pea 8.7 per cent, grain cut green 7.7 per cent, and all others 16.1 per cent. If the acreage of the timothy and clover mixture is equally divided between those two plants, the timothy acreage becomes 25 per cent of the total of tame hay acreage, and clover 21.4 per cent, so that timothy is still the leading hay plant and the clovers have second place, a little above alfalfa.

The leguminous plants, alfalfa, clover, one-half of clover and timothy, and pea are 51.2 per cent of the tame hay area, and it is a significant fact that more than one-half of the tame hay acreage is now devoted to plants of the nutritive and soil improving properties of the legumes, whereas, 10 years ago, as the census testifies, hardly one-third of the tame hay area was leguminous. This comparison has been established by the Bureau of Crop Estimates.

SOUTH LIKES WINTER GARDENS—GREEN VEGETABLES YEAR 'ROUND

More than 25,000 girls in the 15 Southern States planted winter gardens last year and 4,949 more had perennial or permanent gardens, according to reports compiled by the United States Department of Agriculture. The winter garden bridges the gap in the seasons, enabling the southern family to have green vegetables the year round, while many indirect benefits result from the perennial garden in addition to its direct uses. The perennial gardens generally contain some fruit or nut trees, grape vines, berries, or other small fruits selected according to climatic conditions.

The home-demonstration agents, who are supervised by the United States Department of Agriculture and the State colleges, encourage the girls, who are doing advanced work in the garden clubs, to establish permanent gardens, because they realize that such gardens serve as memorials to club girls who go away to high school or college and also serve to draw the girls back to the farmsteads. A perennial garden also provides a means to earn money and enables many girls at school to pay at least part of their own expenses.

Plantings in these perennial gardens are generally begun not later than spring of the second year of club work, so that by the time a club member reaches her third or fourth year's work her garden is in good bearing.

Shows Cost Factors in Milk Production—Feed, Labor, and Other Important Items

What does it cost to keep a cow for a year or to produce 100 pounds of market milk? To answer this question in terms of labor, feed, and other cost factors the Dairy Division of the United States Department of Agriculture has been collecting for several years facts and figures from various sections of the country. The results for northwestern Indiana, typical of many farms supplying the Chicago market, are now available in bulletin form. In collecting the information the department worked in cooperation with Purdue University.

Outstanding Results.

To give permanent value to the figures, the investigators determined the cost of milk production chiefly in terms of feed, labor, and other important factors. Thus by applying current values to any of the items a dairyman, or anyone else interested, may compare his present costs with those published by the department. Practical farms owned or handled by resident farmers were used in the investigation.

Among the outstanding results are the following:

The unit requirements for keeping a cow one year were: Concentrates, 1.02 tons; dry roughage, 3.64 tons; hauling and grinding concentrates, $1.53; bedding, 0.36 tons; pasture, 1.36 acres; human labor, 164.5 hours; horse labor, 16.2 hours; overhead and other costs, $27.11. Credits other than milk: Manure, 6.8 tons; calves, 0.87 of one calf.

Feed and pasture comprised 57.6 per cent of the total cost of production; labor, 19.5 per cent; overhead and other cost, 22.9 per cent. The total cost was offset 22.3 per cent by calves and manure. A different percentage relationship would exist, however, if present prices for the various items were used.

Shows Average Yields.

The extent to which cows of high production save labor was shown clearly by comparative figures for the 25 herds studied. The owner of one herd of cows averaging 9,200 pounds of milk annually had to feed and milk only 9 cows to obtain the same quantity of milk as that given by 12 average cows in other herds.

The results mentioned, together with other details, are given more fully in the new publication department Bulletin 858, "Requirements and Cost of Producing Milk in Northwestern Indiana."

GET BETTER PRICES FOR PINTO BEANS BY BETTER MARKETING

"The pinto bean growers of this State have earned $82,000 in additional profits from their 1919 crop through their Cooperative Marketing Association initiated by specialists of the Bureau of Markets, United States Department of Agriculture," was the recent statement made by a New Mexico pinto bean grower.

Before the association was formed the beans were purchased by local buyers who practically controlled the market and therefore paid almost any price they chose. These buyers were rapidly destroying the possibilities that offered in the marketing of pinto beans through lack of care in grading and packing. Choice recleaned pinto beans was a technical trade name that came to mean nothing, for the beans often contained splits and dirt, as a result of which the trade could not depend upon the quality of the product.

Now the farmers do their own marketing through the association. Sixteen warehouses, properly equipped with grading and packing machinery, have been erected. The beans are carefully graded and then packed in new, even-weight 100-pound bags, which are neatly sewed and branded. The association demands clean cars from the railroad, and in loading the sewed ends of the sacks face one way. The association believes in the Bureau of Markets' proved theory that when a buyer throws open the door of a car he is instantly impressed if the contents present a clean, orderly appearance. The New Mexico association has 1,500 members and marketed 250 carloads of beans last year. It is constantly calling on the Bureau of Markets for assistance, which is cheerfully given.

SAYS WASTE OF WOMAN POWER MENACES NATION'S RURAL LIFE

Home Improvements Far Behind Advance of Farm Business.

Economic Survey Reveals Conditions in 10,000 Farm Homes in 33 Northern and Western States—Labor-Saving Devices Urged.

The waste of woman power is one of the greatest menaces to the rural life of the Nation, according to deductions that specialists of the United States Department of Agriculture draw from a farm-home survey conducted in the 33 Northern and Western States. The survey was made under the direction of Miss Florence E. Ward, in charge of extension work with women, Office of Extension Work, North and West, States Relations Service. The records cover 10,015 farm homes, averaged by taking typical communities of the counties in which the survey was made. Much of the information was gathered personally by home demonstration agents, who are the field representatives of the United States Department of Agriculture and the State agricultural colleges.

Facts Shown By Survey.

Miss Ward points out, from the facts shown by the survey, that a reasonable amount of planning and well-directed investment in modern equipment for farm homes would prevent a large part of this wastage of the energy of the Nation's rural home makers.

"This is a serious matter," she continues, "because we have a live national problem now in working out the economics of country living in such way as to make them satisfied to stay on the land and help build it up. Perhaps the greatest factor in bringing this about will be the healthy, alert, and expert home maker, who will see to it that part of the increased income from the farm goes into improvement of the home. At a time like this, when the dearth of farm labor is a limiting factor in production, it is very doubtful business policy for farmers to use increased income to buy more land instead of using a part of it in raising standards of living so that women and young people will not want to go to the cities in search of attractive living conditions and amusement."

The survey discloses a number of the reasons why many women do not find farm life attractive. The working day of the average farm woman, as shown by the survey, is 11.3 hours, the year round. In summer it is 13.12 hours. And 87 out of each 100 women have no regular vacation during the year. On the average the farm woman can find only 1.6 hours of leisure during the summer and only 2.4 hours in winter. Half of the farm women are up and at work at 5 o'clock in the morning.

Forty-eight per cent have water in the kitchen, but the other 52 per cent must go to the spring or the pump to bring the water for cooking breakfast. Thirty-six per cent help with the milking. On the average, the farm woman has a 7-room house to keep in order. Seventy-nine per cent have kerosene lamps to trim and fill. Ninety-six per cent do the family washing, about half of them having washing machines and the other half doing the work with tub, washboard, and boiler. Twenty-six per cent have gas or electric irons to make more comfortable the task of ironing. Ninety-two per cent do some or all of the family sewing. Garden work is done by 56 per cent, 94 per cent make all or part of the family bread, and 60 per cent have churning to do. Eighty-one per cent of all poultry flocks are cared for by women. One-fourth of the farm women help to feed and bed the live stock, and 24 per cent of them spend over six weeks in the year assisting with some part of the field work. All of this is in addition to cooking the family meals and caring for the children.

This, of course, is the dark side of the shield. It does not take into consideration the many compensations that come with the woman's daily round of work for the comfort of her family, and anyone who has experienced the satisfaction of living in the open country knows that the average farm woman is more fortunately placed than her average city sister. But the task is sufficiently grinding, as Miss Ward says, to send the farm woman to bed "breathing a prayer that her strength may be equal to to-morrow's duties."

Business Principles Needed.

What is to be done about it? The department suggests some very definite things. "The interest of the Department of Agriculture in the returns from these studies as to labor, working equipment, and compensations of the farm woman are as practical," says Miss Ward, "as its interest in farm studies regarding labor, machinery, and crop returns, and for the same general reason." The farm woman's working hours might be shortened, she continues, if the principles of modern business were applied to the farm home. Running water for the 52 per cent who now must carry water and bath rooms for the 80 per cent who have none are other things that would lighten the woman's labor and add to her comfort and contentment. Labor could be lessened if the farm house were as well equipped as the up-to-date barn, which the farmer looks upon as so much currency with which to buy efficiency. The installation of modern lighting systems would release some of the time of the women in the 79 per cent of homes where kerosene lamps are used. The initial cost would be small when weighed against convenience and comfort. The installation of heating systems would release some of the time of the 54 per cent of women who care for two coal or wood stoves.

"As power on the farm is the greatest of time and labor savers for the farmer," Miss Ward's report says, "so power in the home is the greatest boon to the housewife." Forty-eight per cent of farms covered by the survey reported power for operating farm machinery, but only 22 per cent have this advantage for the home. "That," says Miss Ward, "is a singular fact when we consider that frequently it is a simple matter to connect the engine used at the barn with the household equipment." The washing machine is another labor saver. Selling the cream to a creamery wherever possible instead of churning it at home is still another. In short, the same sort of intelligence and a fraction of the money applied to making field and barn work convenient would, if applied to the home, save untold drudgery to the women of the farms and would add both to the profit and the comfort of farm life.

TOBACCO HAS SMALL ACREAGE.

Since the estimate of 216,400 harvested acres of tobacco in the United States made by the Bureau of Crop Estimates, United States Department of Agriculture, for 1863, the area has irregularly increased to 1,647,100 acres in 1918 and 1,901,200 acres in 1919, with intermediate census acreages from 1879 to 1909.

Tobacco is one of the "principal" crops, and is rated as one of considerable importance from a national point of view and of high importance within the limits of some of the States, and yet the area occupied by it is a very insignificant fraction of farm and of crop area. The census for 1909 found 1,294,911 acres devoted to tobacco, and this area was 0.41 per cent of the total crop area and 0.15 per cent of the farm area.

The spring of 1920 was unusually late; in only four years in the past 37 years has the progress of plowing to May 1 been more backward than this year, namely, in 1912, 1904, 1903, and 1899. The outturn of 1912 was bumper crop yields, 1904 large crop yields, 1903 slightly above average, and 1899 about average.

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TELEPHONES FOR PERMISSION TO RUN FROM FLOCK OF BEARS

What do you think of having to telephone for permission to run from a flock of bears—and then having your more or less palpitating proposal turned down?

That is what happened to J. W. Hodge, a fire guard on the Shenandoah National Forest, a few days ago.

Hodge was stationed at the lookout tower on Hankey Mountain. It was his job to scan the skyline and to make expert diagnosis of far away smoke smudges or any other indication of fire in the forest. This particular morning when he went to the lookout tower on the mountain top, he failed to attach his gun to his person. It was a mere formality, anyhow—and guns are cumbersome things to carry around.

Well, he got into his lookout box and began searching the dim blue distances that look like the further fringes of the world. He was very busy at that for a while. Then his eyes came back closer home, and what he saw made him wish for an airplane to take him immediately to one of those far fringes. Three bears were browsing around only a little distance from his lookout tower. They were not apparently giving him any thought, but he did not know how soon they might become hungry. There being no airplane at hand, he decided to use his legs.

Then he remembered he could not leave his post without permission, so he called up District Ranger Shanklin, laid the case before him, and requested permission to go for his gun. He was promptly told that the thing was impossible. The forests were dry, and fire might start anywhere at any time. Bears or no bears, it was Hodge's business to stay in that lookout box. Being a perfectly good forest guard, he stayed. Fortunately another lookout happened to listen in on the telephone conversation and succeeded in sending help to Hodge.

NOW COMPETES WITH GERMANY IN EUROPEAN DYE MARKETS

Discoveries made by the color laboratory of the United States Department of Agriculture have enabled American manufacturers to produce phthalic anhydride, which is an important dye intermediate, at so low a cost that it is now being made in this country at a price that has made it possible to sell it in Switzerland in direct competition with Germany. Before the war this product was made only in Germany and Austria. Phthalic anhydride is used in the manufacture of more than 300 chemicals. It is an important intermediate in the manufacture of several brilliant dyes, one of which is indigo. The process discovered by the specialists of the department makes it possible to use atmospheric air in making phthalic anhydride from naphthalene. This process is much cheaper than the one employed by the Germans, which requires the use of sulphuric acid and mercury instead of air. During the war phthalic anhydride sold for as high as $7 a pound. The cost of manufacture has been reduced by the new process to such an extent that it is now being sold for 45 cents a pound. For this reason the Germans are not able to compete successfully with the American manufacturers who are selling it in Switzerland. The price may be reduced still further as the demand for this dye intermediate increases.

GOOD FRUIT AND VEGETABLE DRIERS MAY BE MADE AT HOME

The purchase of expensive factory-made driers for fruits and vegetables often calls for an expenditure of several times the amount necessary to secure a good drier of either the homemade or factory-made type, according to the United States Department of Agriculture, which has made a study of the best types of driers for home use. The department has had its attention called to one drier now on the market selling at a price about five times what it would cost to construct a satisfactory substitute at home. While the interest which gardeners are everywhere manifesting in increased food production should result in increased use of driers, the department believes that a large money expenditure for such equipment ordinarily is not necessary.

For the benefit of those who prefer to make their own driers the department has published for free distribution pamphlets containing detailed information on the subject. One of the driers recommended is metal covered and is designed to stand on a cookstove or small furnace. A less expensive cookstove drier, also recommended, is made of lath, wire screen, and canvas or heavy unbleached muslin. With either of these articles much of the garden's surplus can be conserved for winter use, thus materially reducing the food bills of the coming months.

MIGRATORY-BIRD LAW UPHELD IN SUPREME COURT DECISION

Sportsmen who merit the title in the United States have been much interested in the protection of the migratory birds by the Federal Government. It has long been realized that the conflicting laws employed by the various States have worked havoc with our most valuable game and migratory birds, so the migratory-bird treaty and the Lacey Acts have had the support of every nature lover in this country and in Canada.

On April 19, 1920, the Supreme Court of the United States rendered a decision upholding the constitutionality of the treaty act. In a suit brought by the State of Missouri against a Federal game warden the Supreme Court held that the Federal game laws were enforceable in a State whose game laws conflicted with the migratory-bird treaty act.

The court defined the situation in the following paragraph taken from the opinion:

"Here a national interest of very nearly the first magnitude is involved. It can be protected only by national action in concert with that of another power. The subject matter is only transitorily within the State and has no permanent habitat therein. But for the treaty and the statute there soon might be no birds for any powers to deal with. We see nothing in the Constitution that compels the Government to sit by while a food supply is cut off and the protectors of our forests and our crops are destroyed. It is not sufficient to rely upon the States. The reliance is vain, and were it otherwise the question is whether the United States is forbidden to act. We are of opinion that the treaty and statute must be upheld."

Costs and fines amounting to $12,695.83, according to the May report of the Bureau of Animal Industry, United States Department of Agriculture, were assessed against railroads for violations of livestock quarantine laws and the 28-hour law.

THE FARM WOMAN TELLS HER OWN STORY

Survey of 10,000 Homes Shows Serious Wastage of Woman Power in Rural America—Remedies for the Disorder

By FLORENCE E. WARD,

In Charge, Extension Work with Women, Office of Extension Work, North and West.

(Continued from last week.)

WITH the statistics regarding farm-home living and working conditions collected and compiled, the question naturally arises as to what use will be made of these data by the State and national extension service and what steps are being taken now to help relieve some of the conditions brought out in the survey.

The data serve a dual purpose: First, they offer a reliable and much-needed guide to extension workers in their service to the home; and, second, they point out to the farming people and others interested in them the great value of trained assistance to farm women along definite lines.

In endeavoring to build up a broad educational extension movement, made possible by the Smith-Lever Act, the State colleges and States Relations Service have had, up to this time, a much more limited background of facts on which to base plans for cooperation with rural housewives than with farmers for the reason that little attention has been given to farm-home problems, although the farm woman's work has as great economic importance and calls for as high a degree of skill and as wide a range of information and judgment as does the work of the farmer whose equipment and methods of farming have been the subject of many studies made by our agricultural institutions.

Present Survey Important.

With the exception of the investigations of the County Life Commission appointed by President Roosevelt in 1908 (Senate Document 708), and the inquiry as to farm home conditions made by Secretary Houston in 1914, replies to which were compiled and interpreted (Yearbook 1914; also Reports 103, 104, 105, and 106), and two intensive studies of counties made by the States Relations Service (Canyon County, Idaho, 1916; St. Joseph County, Mich., 1916), comparatively little has been done in this field that throws light on conditions in the North and West. Hence the importance of the present survey, which, resting upon information from many communities, probably gives a fair diagnosis of farm home conditions, and when interpreted by extension workers and farming people should point to remedies which may be applied through organized effort and local leadership.

With the introduction and development of the farm bureau idea, now Nation wide in its influence, promoting as it does a self-determined program of activities among the people for the economic and educational advancement of rural life, the farmer and his wife are destined to analyze their home problems more and more and to make use of the farm bureau organization and the extension service for the solving of those problems.

Makes Farm Life Better.

The farm is subsidiary to the home as is the home to the farm. Here men, women, and children form a working unit, with common interests and aims, and the farm bureau dealing with this family unit and with community groups views home work not as isolated and detached from the farm but as one phase of the problems of the farmstead. Men and boys work primarily with production in the business of farming, and women and girls with utilization and conservation in the business of housekeeping; but all come together in a common interest and for a common goal—home-making. Farming and housekeeping are not ends in themselves, but necessary means to the realization of this goal.

Prosperity on the farm and efficiency in the house, in their last analysis, are only valuable as they make people better, wiser, and happier by creating and multiplying opportunities for richer and more satisfying rural home and community life. Hence all extension forces, the county agricultural agents, club agents, home demonstration agents, and specialists are working in their respective fields with this larger aim and purpose. This brings about constant interchange of effort and service. For example, the farm woman's interests and activities go beyond the threshold of her house; when necessary, into such work as poultry raising, beekeeping, and marketing of home products. In this she frequently has the help not only of the men folks at home but of the county agricultural agent, the club agent, and specialists from the college. She may also call upon these for advice and assistance in looking after the water supply and other phases of home improvement. Women extension workers also frequently go out of their special field of home economics work to give advice and assistance, thus expressing, it is believed, the true spirit of the Smith-Lever Act, which, drawn in broad language, refers equally to the service of the farm and home and includes all phases of work that affects wholesome farm life.

Women everywhere are welcoming the services of the home demonstration agent much as farmers welcome the agricultural county agent. This trained home economics worker, employed on Federal, State, and local funds, and devoting all her time to the advancement of home efficiency, is studying with home-makers the needs of individual homes and communities, and is thus able, by linking her technical skill with the practical knowledge and experience of the housewives, to cooperate in the accomplishment of large results by providing a channel through which the State agricultural college and the Department of Agriculture can deal directly with rural home-makers.

Increased moral and financial support of local communities during the present fiscal year, 1919–20, for the nearly 300 agents now employed has shown the belief of the people of the North and West in home demonstration work, and has placed it on a promising basis which looks toward its establishment eventually in every agricultural county in the North and West.

One Modernized Farm Home.

A few instances are here given to show the methods used and results secured through the partnership of the housewife, the home demonstration agent, and the home-economics specialist in solving some of the live problems pointed out in this survey.

A large family lived in a small house on a prosperous farm; little thought had been given to the expenditure of any part of the farm income for home convenience. One day the mother in this home mentioned to the home-demonstration agent that it was difficult to keep

the kitchen in order when all members of the family used it as a place to "wash up." The agent suggested the possibility of a washroom with water piped into it. The farmer and his wife became interested. A carpenter was called in to make plans, and before he had finished his work a screened porch was added. The washroom later developed into a bathroom complete with modern fixtures. A few more timely remarks brought forth a new water front on the range and hot-water tank and sink in the kitchen. About this time there was an item in the farm-bureau column of the local paper regarding convenient kitchen arrangement. Following its suggestions, this home maker put blocks under her kitchen table to save bending when at work and moved the cupboard nearer the stove to lessen steps. Later a power washing machine was bought and a washhouse built. The milk separator was moved out of the kitchen into the washhouse. This home maker was so delighted with her transformed workshop that she called in the neighbors to see it, and as a result five more women rearranged their kitchens. Two put water in the house and three are now planning to purchase power washers.

Advance Made Last Year.

The annual report of the home-demonstration agents for 1919 indicates that a decided advance was made last year in the business side of housekeeping. One hundred and sixty-six counties where home-demonstration agents were employed carried on some sort of county-wide campaign for increased home efficiency.

One thousand and seventy-seven farm families were assisted in rearranging farmhouse or kitchen as an important first step in efficient housekeeping, the largest number reporting from Iowa.

Closely associated with the home-demonstration agent and preceding her as a pioneer is the home-economics extension worker, who goes out from the college to conduct extension schools, to train local leaders, and in various other ways to bring to housewives the best methods and processes resulting from laboratory experimentation. Typifying this is the work of the Massachusetts clothing efficiency specialist, who personally trained 268 local leaders in courses of clothing efficiency. These women passed on these courses to more than 4,000 of their neighbors and acquaintances. As a result 4,320 garments were made and 9,802 remodeled, with an estimated saving of $56,998. This work done in cooperation with home-demonstration agents is looked upon in Massachusetts as the beginning of a State-wide drive for clothing efficiency which will meet the needs of every rural woman of moderate income who wishes to make part or all of her own simpler garments of those of her family.

Replies to the survey indicate that 92 per cent of rural home makers do a larger part of their own sewing.

Meets a Real Need.

Anything that shortens the time the farm woman spends on the family sewing, or helps her to make or select garments that give better satisfaction for a given expenditure of time and money, and especially anything that helps her reduce clothing expenditures in this era of inflated prices, meets a real need.

The annual report for 1919 shows that clothing specialists and home demonstration agents aided, through direct teaching and training of volunteer leaders, in the making or remodeling of 30,000 garments, at an estimated saving of $218,000. The following lines were stressed: Renovating and remodeling, adaptation of commercial patterns, the making of dress forms, free-hand cutting and drafting, and selection of textiles.

The hot school-lunch project, in which extension workers have had a prominent part, has been most successful. The survey indicates that the average country school is about 1½ miles from the home, which makes it impossible for the country child to share in the hot midday dinner prepared for the family.

An examination of the school dinner pail often reveals that too frequently unappetizing or indigestible foods are the underlying causes for lack of appetite and the restlessness of pupils. Well-selected food, attractively packed, supplemented by one simple hot dish prepared by the pupils at school, has resulted in improved health and better school records. It has also proved the opening wedge for the study of food selection in the home, not only for the child, but for the whole family, and has increased the use of milk, cereals, and vegetables in the diet.

Demonstrates Child Feeding.

In Pirtleville, Ariz., where malnutrition was prevalent among school children, the home demonstration agent secured the cooperation of the school principal, the school nurse, and the project leader of the farm bureau in putting on a child-feeding demonstration. At the end of the six weeks' demonstration the children showed marked gains in weight and noticeable improvement in school work and deportment. The county was awakened to the benefits of proper child feeding, and the installation of school lunches in a number of outlying schools resulted.

The annual report for 1919 shows that practically all of the 33 Northern and Western States carried on some sort of hot school-lunch activities and that more than 3,000 schools introduced school lunches through the influence of the home-demonstration agent.

One of the outstanding extension projects during the past year has been that of home health. This has included demonstration in first aid, the elements of home nursing, preparation of food for sick and convalescents, and preventive hygiene. It is gratifying to know that 202 counties have adopted a home health project and that 28,000 families have cooperated with home-demonstration agents in an endeavor to improve their own and their neighbors' health.

In Idaho, where vigorous health work has been carried on, several county nurses are employed on State funds, this work being under the general direction of the State home-demonstration leader.

Activities Outside the House.

The service of the home-demonstration agent is not confined to the house, but follows the woman into the garden, the poultry yard, and dairy to assist her in outside tasks when these contribute to home comfort.

Judgment as to relative values usually guide the home maker in determining the amount of outdoor work it is profitable for her to do either as a money-making scheme or as a means of producing food for the family table. Often when the woman lacks even small resources to bring needed comfort and beauty to the home, such industries as poultry raising and gardening provide the needed increase in income from which all the family may derive benefit.

It is poor business from every standpoint, however, if work out of doors means overstrained nerves and muscles resulting from an attempt to take on these duties without releasing any household tasks or if it means neglect of housework or sacrificing attention to children, thus lowering instead of increasing the standard of living.

Statistics show that young women are leaving the rural districts for the cities in larger numbers than young men. Where this is true, the influence of the home-demonstration agent has been most telling in helping young women to feel their economic importance in agricultural and home pursuits and in discovering ways of making incomes on the land equal to those that could be earned in shop or factory.

Poultry work has been promoted in several States through demonstrations

along lines of poultry selection, breeding, raising, feeding, housing, culling, canning, preservation of eggs, and cooperative selling of poultry products. Many flocks have been improved when farm women have found through culling demonstrations that 40 per cent of the average flock is nonproductive.

Connecticut, Delaware, Idaho, Illinois, Missouri, and Vermont carried on intensive poultry culling campaigns in which the home demonstration agents played a prominent part. Schools of instruction were held so that those trained might not only eliminate their own nonproducing birds but teach their neighbors through community demonstrations.

In Missouri, 73,765 birds were eliminated from 1,593 flocks culled with an estimated saving of $50,161. In the cooperative buying and selling of eggs, 8 cents a dozen more was received than on the local markets.

Increasing Use of Milk.

Home demonstration agents are cooperating in a campaign for increasing the use of milk and milk products in the home and the home manufacture of such milk products as can be most economically handled there. Reports of these agents for 15 States for the year 1919 show that 367,000 pounds of cheese were made by the housewives to whom home demonstration agents and dairy specialists had given assistance in the best methods of making cottage, American, and Cheddar cheese both for home consumption and for selling.

It is claimed by those who have made investigations that 25 per cent of country children do not drink milk. A definite drive is now being carried on to persuade country children to drink more milk, and feeding demonstrations are being conducted by home demonstration agents in cooperation with parents and teachers to this end.

One State reports the increase of home consumption to be 438,000 quarts daily; another State, where home demonstration work was carried on in only six counties, reports 279,000 quarts daily as a result of this work. In Indiana one home demonstration agent in cooperation with the school nurses and doctors proved the value of the increase of milk in the diet by a child-feeding demonstration with a group of undernourished children. At the end of six weeks an average gain of 7½ pounds had been made, and the school board voted funds to carry on the enterprise.

The socializing influence of the many war emergency organizations is now being capitalized by home demonstration agents who are assisting communities to tie up these temporary enterprises with permanent activities in connection with efficient home-making.

Two effective means of reducing home drudgery are the introduction of such modern labor-saving equipment in the home as will accomplish necessary work in the most efficient way and the removal from the home of such activities as can be carried on as cheaply and as successfully through community cooperation as by traditional home methods. For example: Since survey replies indicate that 96 per cent of the women do their washing and ironing, it would seem that such an activity might well be removed from the home, releasing each week many hours of the woman's time and saving her from one of the heaviest tasks of the household. Experiments in a number of communities indicate that a cooperative laundry, especially when run in connection with a creamery, is not only a convenience but a paying investment.

Fewer Nervous Breakdowns.

Community working and trading centers mean much to rural women, not only from the standpoint of economy, time, money, and effort, but as a means of persuading the stay-at-home to walk through her gate and down the road to join her neighbors in some task which is made lighter through cooperation, and from which she returns refreshed and encouraged with new ideas and plans not only for her own housekeeping but for the larger housekeeping of her neighborhood. No amount of socialized work, however, takes the place of real recreation, as it looks too earnestly toward a finished result. Care-free recreation for the delight of the moment eases nervous tension, promotes good fellowship, and is as necessary for the mental and physical poise of men and women as it is for boys and girls. Home-demonstration agents, where no other agency is meeting this need, are cooperating with farm families in home and community recreation which includes games, chorus singing, dramas, and pageants.

Recreation Specialists.

The extension department of the Montana State College, realizing the importance of this, employs a recreation specialist whose work is stimulating a fine social-community spirit in many localities in that State, where homes are so far apart. Montana is thus putting into practice a conviction that is growing in the minds of extension workers everywhere—that, while it is their first business to promote efficiency, this should be looked upon as a means of stimulating a richer and more satisfying rural life by freeing the home maker's time and energy so that she may give attention to the attractiveness and comfort of her home, the training and companionship of her children, the enjoyment of books and neighbors, and the building up of recreational, social, and educational life of her community. This will increase the percentage of active thinking women of service to society and reduce the percentage of passive slaves of routine, whose tasks cease only to begin again with a new day.

It is believed that the survey just completed by farm women themselves, in cooperation with home-demonstration agents, is but the first of a series of intensive studies which will from time to time be made, not only to show the needs but to mark the advancement that is sure to come as the Government, colleges, and farming people work together on a common program for better agriculture and a richer rural life.

RENEWS CONFIDENCE IN WOOL TRADE BY LOANS TO GROWERS

(*Continued from page 1.*)

tion may properly be financed by acceptances in the above manner."

While the statement refers only to acceptances based on bills of lading, Gov. Harding referred those present to the provisions of section 13 of the Federal reserve act as to eligibility for discount of paper secured by warehouse receipts.

At a further meeting held late last night of all interests concerned it was the unanimous opinion that the plan suggested above was practical and feasible, and that no extraordinary difficulty would be encountered in the necessary financing to carry along the present season's wool clip until a normal buying market should reassert itself, which it was the firm belief of all would be within a very reasonable length of time. All members of the conference have departed for their homes, feeling that the difficulties surrounding the marketing of the present season's wool crop have been satisfactorily disposed of.

TWO SCRUBS FEWER.

"I got rid of a scrub Poland China sire and also of a bull in order to get purebreds." With this explanation a breeder of cattle, swine, and poultry in Lewis County, Wash., enrolled in the "Better Sires—Better Stock" movement. Hereafter 42 scrub cows, 6 grade sows, and 40 mongrel hens which he owns, in addition to a small quantity of better females, will be bred only to sires of pure breeding.

When You Dig Up a Barberry Bush, Take Care to Get the Sprouts, Too

Perhaps your property also has harmful barberry bushes on it. Previous owners may have planted either common barberry or the purple-leaved variety among your clumps of bushes or in the border.

Your father or grandfather or someone's grandfather may have planted one bush or a whole hedge of bushes, from which the birds have scattered seeds in all directions along streams and in wood lots. You may have acquired such a property recently. At any rate, look over your property carefully for barberries. If you find any, dig them and report the number and location either to your agricultural college or to the Office of Cereal Investigations, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., so a record may be had of them. By this means those engaged in the eradication work can check back to see that any sprouts overlooked are dug up. Letters will be sent to the persons making the reports urging them to be sure no sprouts were left in the ground.

Even with the most careful digging many small roots doubtless have been missed. Seeds, too, may have been shaken off and covered by loose earth. Many of these no doubt will sprout during the spring and summer. The tender leaves of sprouts or seedlings are even more likely to become infected with wheat rust than leaves of mature bushes. Sprouts, if allowed to remain, will soon grow into large bushes. The work already done will then be in vain.

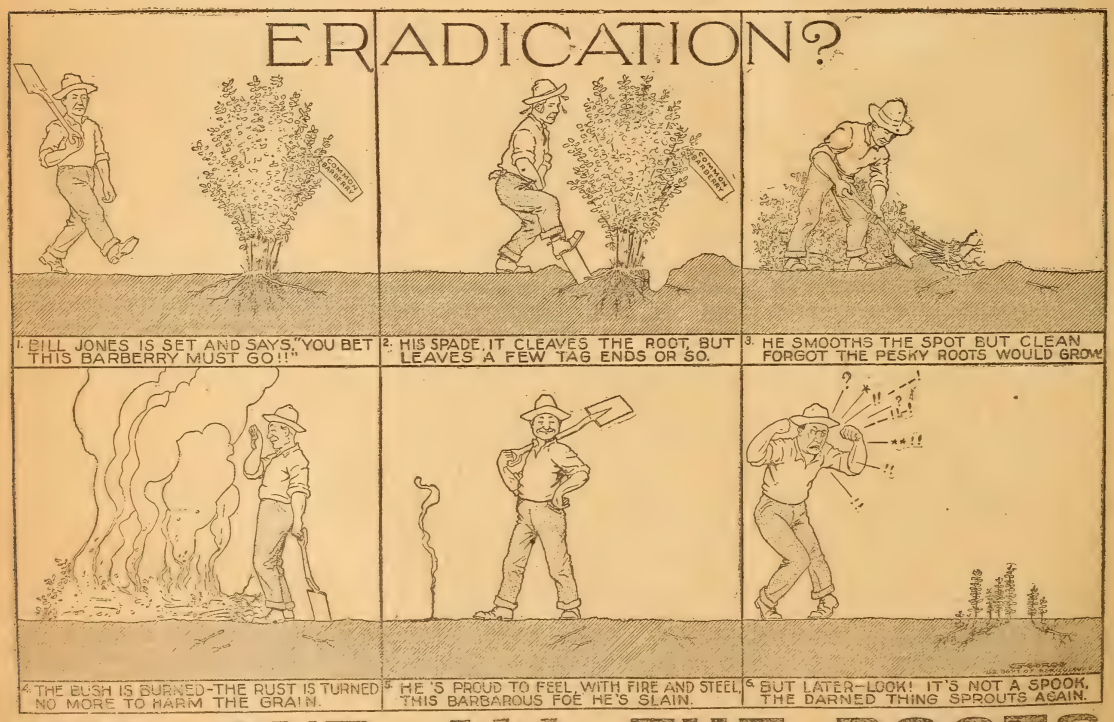
Swat the Sprouts.

If you dug your barberry bushes the year before last, or last year, or even this spring, watch the place where they grew and do not allow either sprouts or seedlings to grow. Swat the sprouts.

The campaign for the eradication of the common barberry has entered its third year. This work is cooperative between the United States Department of Agriculture and the agricultural colleges of 13 of the principal wheat-growing States, namely, Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming. Most of the bushes in cities and towns have been located. All reports of country plantings have been followed up. Surveys of all rural properties completed in a few counties of each State gave an average of 20 plantings per county on farms. Over a million and a half barberry bushes were found escaped from cultivation in one county in Wisconsin. One thousand and seventy other rural properties in 118 counties of 11 States have escaped barberries. When careful surveys are made these and other areas more recently reported doubtless will show over a million more wild bushes.

During 1918 and 1919 barberry inspectors have located and caused the eradication of more than 3,000,000 bushes. Thousands of bushes from nurseries were destroyed. Property owners and interested citizens voluntarily eradicated hundreds of hedges and thousands of small clumps or single bushes which were not reported to the department.

SAVE WORK BY DOING IT ALL AT ONE OPERATION.



DIG OUT ALL THE ROOTS

WATCH THE SPOT AND SWAT THE SPROUTS

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Miss. C. M. Viehmann.
1 B-Z

Weekly News Letter

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THICK COTTON SPACING GIVES BIGGER CROPS, EXPERTS FIND

Early Maturing of Bolls Lessens Likelihood of Drought and Weevil Injury.

Department for Years Has Advocated This System—Now Supported by Tests of State Experiment Stations.

A number of State experiment stations are publishing the results of tests on thick spacing of cotton, as opposed to the old system of wide spacing. Without exception, the experiments have demonstrated the value of thick spacing, or the single-stalk culture system, that has been advocated by the United States Department of Agriculture for several years past. Some of the agricultural journals are commenting on the reports of experiment stations, and, while they advise planters to adopt the thick-spacing system, they believe that the old system has become so thoroughly established that its overthrow will be difficult. That there may be a proper understanding of the scientific principle on which the thick-spacing method is based, department specialists have attempted to make that clear in a statement just issued.

Grows Fruiting Branches Only.

Cotton produces more lint when it is thick in rows than when it is thin in rows because of a somewhat unusual branching characteristic. The cotton plant puts out two kinds of branches—short lateral branches that bear fruit and long, heavy, vegetative branches that are, in effect, secondary stalks. These vegetative branches finally put out lateral fruit branches, but they require a long season in which to do it. Under adverse conditions, such as drought or boll-weevil infestation, they do not produce cotton, because their fruiting season is so late that the adverse condition, whatever it may be, frustrates it.

If cotton is sufficiently thick in the row, the plants put out only fruiting branches. There is no room for the vegetative branches to grow. Therefore mere plant growth is restricted and the vitality of the plant goes largely into lint production. The result is that the bolls are put out and mature much earlier and more profusely than when the plants are far apart, and boll weevil and drought injury are minimized.

Cotton persists in growing thick in the row, no matter how sparsely the original plants may be spaced. Each vegetative branch or secondary stalk is essentially a new stalk of cotton. It grows on the same root stalk, but it takes up as much space, as much moisture, and as much soil nutrition as if it were a separate plant. Experiments conducted several years by the Department of Agriculture showed that cotton 3 feet apart is in effect just as close together as cotton 3 inches apart—that is to say, when the cotton is spaced 3 feet apart it puts out enough vegetative branches or secondary stalks to make the equivalent of one stalk every 3 inches. These secondary stalks are at the disadvantage of being several weeks later than the

(*Continued on page 8.*)

TEN HELPS IN MARKETING WOODLAND PRODUCTS.

1. Get prices for various wood products from as many sawmills and other wood-using plants as possible.
2. Before selling, consult neighbors who have sold timber and benefit from their experiences.
3. Investigate local timber requirements and prices. Your products may be worth more locally because transportation is saved.
4. Advertise in papers and otherwise secure outside competition.
5. Secure bids if practicable both by the lump and by log-scale measure.
6. Be sure that you are selling to responsible purchasers.
7. Get a reliable estimate of the amount and value of the material before selling.
8. Market the higher grades of timber and use the cheaper for farm purposes.
9. Remember that standing timber can wait over a period of low prices without rapid deterioration.
10. Use a written agreement in selling timber, especially if cutting is done by purchaser.

Write the Forest Service, United States Department of Agriculture, or State forester if you need further help.

SECRETARY MEREDITH NAMES NEW BOARD OF TEA APPEALS

Tea Inspection Service Transferred to Department of Agriculture July 1.

No Change in Procedure for Making Appeals from Decisions of Examiners—Bureau of Chemistry Takes New Duties.

The act to prevent the importation of impure and unwholesome tea, heretofore enforced by the Treasury Department, went under the jurisdiction of the United States Department of Agriculture July 1, as the result of recent legislation in the act making appropriations for the Department of Agriculture. Mr. George F. Mitchell, the supervising tea examiner, and his staff of tea examiners have been transferred from the Treasury Department to the Department of Agriculture. Mr. Mitchell will continue to have immediate charge of the tea-inspection service, carrying on the work under the general supervision of Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, who also administers the Federal food and drugs act.

Personnel of the Board.

A United States Board of Tea Appeals has been appointed by the Secretary of Agriculture from among the employees of the Department of Agriculture, according to one of the provisions of the act transferring the tea inspection service. The board is composed of H. W. Redfield, chemist in charge of the New York station; N. L. Townsend, Bureau of Animal Industry; and A. Dexter Gail, jr., Bureau of Markets. The United States Board of Tea Appeals has all the powers and duties granted by the original tea-inspection act and its amendments to the Board of United States General Appraisers. The principal duty of the Board of Tea Appeals is, as its name suggests, to consider appeals from the trade regarding the decisions of the tea examiners. The Board of Tea Appeals is authorized by the act to obtain the advice of such tea experts as may be necessary to assist it in passing upon the appeals. No change is at present contemplated in the pro-

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cedure for making appeals or in the manner of considering appeals.

The transfer of the tea-inspection service to the Agricultural Department was made upon the joint recommendation of the Secretaries of the Treasury and of Agriculture. Since there is no duty on tea, and since the Department of Agriculture is charged under the food and drugs act with the examination of all imported foods and drugs, including tea, it was thought that the enforcement of the tea-inspection act was more closely related to the Department of Agriculture than to the Treasury Department. Tea is subject to the provisions of both the food and drugs act and of the tea-inspection act. The food and drugs act covers only adulteration or misbranding, but the tea-inspection act includes consideration of both quality and purity.

Only Minor Changes in Regulations.

The new tea regulations to be issued by the Secretary of Agriculture under this act will be about the same as the present regulations now enforced by the Treasury Department, except that the regulations have been rearranged as a matter of convenience. The new regulations will give even quicker releases on tea, where no dutiable coverings are involved, than are now given at ports where tea examiners are stationed, because the uniform chop list submitted in duplicate by the importer direct to the tea examiner will serve as a release permit after it has been signed by the tea examiner and returned direct to the importer or his agent.

The most important changes in the regulations are embodied in Regulations Nos. 10, 11, and 12, which correspond in part to Regulations Nos. 2, 3, and 4, of the regulations previously in force under the Treasury Department.

Regulations 10 11, and 12 of the new regulations, which are of especial interest to the tea trade, follow:

Reg. 10. The examination of teas at ports where a duly qualified tea examiner is stationed shall be made by means of samples drawn by the sampler from packages designated by the tea examiner. The importer, when his teas are ready for sampling, shall submit in duplicate to the tea examiner a chop list and release permit (T. I. S. Cat. No. 1) of the several lines included in the invoice, and the tea examiner shall select for examination packages representing the different lines.

The examination and report upon such samples shall be made in accordance with the provisions of section 7 of the above act, and the result of this examination shall be noted on the invoice by the tea examiner before he returns the invoice of the collector. The tea examiner at the same time should make his returns on the original copy of the chop list and release permit (T. I. S. Cat. No. 1) which after being duly signed by him should be forwarded by him to the importer or consignee.

In case the tea coverings are dutiable, the tea examiner shall follow the same procedure as above, except that the chop list and release permit shall be returned to the collector of customs for such action as he sees fit to take.

In case a partial release is desired, the importer shall furnish an additional chop list and release permit (T. I. S. Cat. No. 1) of the goods that he desires, the original chop list and release permit being retained by the tea examiner until action on all the teas in the entry has been taken.

Reg. 11. In case an entry of imported tea shall be made at a port or subport where no tea examiner is stationed, the importer should prepare the chop list and release permit (T. I. S. Cat. No. 1) in triplicate and forward them to the chief officer of the customs at the port of entry. The importer will also furnish the chief officer of the customs at such port samples, with a sworn statement that the samples submitted by him are drawn from packages designated by the chief officer of the port, and covered by his entry (naming the vessel), and that, to the best of his knowledge and belief, they represent the true qualities of each and every part of the invoice (including the proportion of dust), and accord with the specifications contained therein. Duplicate samples shall be obtained by such officers, and both sets of samples, along with the original and one copy of the chop list and tea release permit (T. I. S. Cat. No. 1), shall be forwarded to the nearest qualified tea examiner for his report and return. Samples sent for the purpose of examination from ports of importation to ports where tea examiners are located shall be packed in perfectly new tin cans, cylindrical in shape, 2½ inches deep, 3 inches in diameter, of a capacity of 4 ounces, with tight slip covers properly labeled and properly "seasoned," according to the customs of trade.

Reg. 12. In all cases the importer shall indicate on the chop list and release permit where the goods are to be sampled, whether on the dock or in warehouse.

If the consular invoice has not been received, the importer may prepare an additional copy of the chop list and release permit as a pro forma invoice, marking across the face thereof "Pro forma invoice."

Importers may print their chop list and release permit forms, provided they conform strictly with the official form (T. I. S. Cat. No. 1). Otherwise, they can be obtained free from the United States tea examiner at ports where tea examiners are stationed, or from the chief officer of customs at ports or subports, where no tea examiners are stationed.

Filling Out Chop List.

Importers in filling out the chop list should note that the space provided on the left lower side of the chop list and release permit (T. I. S. Cat. No. 1), for transmission to the tea examiner will only be signed by the chief officer of the customs at ports or subports where there are no tea examiners stationed. At ports where tea examiners are stationed the chop list and release permit will go direct from the importer or his agents to the tea examiner.

SAYS SMUT-FAN USE BROUGHT BETTER PRICE FOR HIS WHEAT

From an insurance rate amounting to $80 per thousand to nothing is quite a drop, but Mr. E. J. Doneen, president of the Whitman County Farmers' Union, of Oaksdale, Wash., asserts that the smut-collecting fan devised by the experts of the United States Department of Agriculture has done that for him. Moreover, his wheat, thrashed from very smutty grain, sold at a discount of only 1 per cent.

Addressing a farmers' meeting at Walla Walla, Wash., Mr. Doneen told his audience: "I started thrashing on the worst place on my farm, where the grain contained from 17 to 20 per cent smut heads, and by using the smut fan ran the smut out through a pipe 10 inches in diameter. At first the smut was simply scattered over the field, but later we put the end of the pipe under the stack, thus preventing the spread of the smut spores.

"We ran the machine for 31 days and had no fires or explosions, although there were 16 explosions in the district last year. I sold the wheat at only 1 per cent discount, whereas without the smut fan I would have been docked at least 10 cents a bushel."

RECEIPTS FROM DAIRY TRIPLED.

Keeping daily records of the milk yield of each cow, where there is no cow-testing association, is a profitable practice. This is shown by reports on herd records received by the United States Department of Agriculture.

An instance where a herd has been greatly improved without increasing its numbers (by more than one cow) is found in a report from Oklahoma. The dairyman's cream checks for a given month amounted to $78.42, the cream being obtained from a herd of 27 cows. One year later, after doing herd-record work, he was able with a herd of 28 cows, just 1 more than he had at the earlier date, to sell cream to the value of $223.60, or nearly three times as much—a pretty good return for care given to culling the herd and improving the management.

While the current prices for butter fat have increased somewhat, they have not trebled in a year, so it is obvious that there has been a large increase in the productiveness of the herd.

Should Keep Young Pigs in Clean Pens—Roundworm Found to Cause Many Deaths

Investigations reported in a recent technical publication of the Bureau of Animal Industry, United States Department of Agriculture, disclosed additional evidence of the importance of keeping young pigs in clean pens that have not been contaminated by other swine.

A roundworm of pigs, known as *Ascaris suum*, is held responsible not only for many deaths among swine but for a large proportion of the runts among these animals. Development and perpetuation of the roundworms is fostered by badly drained and manure-covered hog lots, which are on this account dangerous to young pigs and not good for pigs of any age.

Soil May Become Infested.

Eggs of the parasite may remain alive in soil for five years and even longer. Places occupied by pigs harboring the adult worms in their intestines will become badly infested with the eggs. Pigs farrowed and kept in such places are certain to pick up many of these eggs, and even suckling pigs are liable to swallow eggs present in dirt adhering to the teats of the sows.

Investigations by the bureau have proved that after the eggs have been swallowed and have hatched in the intestine the young worms do not immediately settle down, but penetrate the wall of the intestine and travel to the liver and the lungs. From the lungs they crawl up the windpipe and then down the esophagus and return to the intestine. Only after they have passed through the lungs do they establish themselves in the intestine and grow to maturity.

May Cause Pneumonia.

In passing through the lungs the young worms cause more or less damage to these organs. Pneumonia may result and the animal may die about a week or 10 days after infection. Symptoms of this pneumonia among pigs are commonly known as "thumps." Not all cases of "thumps" come from this source but the worms are frequently the cause. Young pigs are more susceptible than older pigs to infection and are also more likely to suffer severely from migration of the young worms through the lungs.

There is no treatment for the lung stage of the parasite. If the pig survives he may later be treated with worm remedies to remove the worms from the intestine. In such cases, however, it commonly happens that the animal has been so seriously injured by the worms during their migration through the lungs that even after their expulsion from the intestine the pig is unable to make up for the setback he has received, although he does better than if allowed to go untreated.

EDITORS INSPECT NEW PLANT FOODS NOW GROWN FOR TABLE

An interesting exhibit of fruits and vegetables was prepared by the Office of Foreign Seed and Plant Introduction of the United States Department of Agriculture for the benefit of the agricultural editors who recently met in Washington.

Ranged upon the tables were specimens of cassava root, dasheen tubers, udo shoots, passion fruit, white sapote fruit, chayotes, and last, and best of all, a collection of highly colored and extremely fragrant mango fruits.

All the vegetables and fruits were ftesh and all were grown in the United States at Government stations.

The culture of some of the vegetables and fruits represented at the exhibition is limited by climatic conditions to our Southern States, but this feature will not bar them from the northern and western markets. The exhibition in this respect gave some idea of the increased range given to the American bill of fare by the introduction of these plants for commercial purposes.

The udo, a celery-like shoot of a Japanese vegetable, is not limited by climate and is now being grown successfully as far north as Nova Scotia. It is a salad vegetable of particularly pleasing taste and texture—something quite strange to the American palate.

The value of the exhibit is in the fact that each of its members has passed beyond the experimental stage of culture and may be regarded as an accepted agricultural resource.

COTTON MEN DISCUSS MEANS FOR PINK BOLLWORM CONTROL

An important cotton conference is in progress to-day (July 14) at the United States Department of Agriculture to discuss various questions arising from Federal control measures against the pink bollworm. Quarantine officials of all States particularly interested, together with such other interested persons, are in attendance.

The basis for the Federal quarantine was established by the public hearing held here April 6 and 7. The purpose of this conference is to consider what quarantine and other control action may be necessary on the part of the Federal Government in view of the changed situation in Texas as a result of the new pink bollworm law enacted by the special session of the State legislature, and in view of the legislation which has been promised, and which undoubtedly will be enacted shortly by the Legislature of Louisiana now in session. An important object of the conference will be to harmonize quarantine action, both Federal and State, and also to limit such action to the necessities of the situation.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended July 3, 1920:

Rabbit Raising. Farmers' Bulletin 1090.

Dockage Under the Federal Wheat Grades. Farmers' Bulletin 1118.

The Whorled Milkweed as a Poisonous Plant. (Professional Paper.) Department Bulletin 800.

Citrus-Fruit Improvement: A Study of Bud Variation in the Lisbon Lemon. (Professional Paper.) Department Bulletin 815.

Jack Pine. Department Bulletin 820.

The Flow of Water in Dredged Drainage Ditches. (Professional Paper.) Department Bulletin 832.

Black Grain-Stem Sawfly of Europe in the United States. (Professional Paper.) Department Bulletin 834.

The Bean Ladybird. (Professional Paper.) Department Bulletin 843.

Examination of Frozen Egg Products and Interpretation of Results. (Professional Paper.) Department Bulletin 846.

The Work of the Huntley Reclamation Project Experiment Farm in 1918. Department Circular 86.

Sweet-Clover Seed Screenings Not Injurious to Sheep. Department Circular 87.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C. In order to aid the department in giving prompt attention, make your request *definite* by specifying the distinct class and number of publication desired. for example: Farmers' Bulletin No. 110; Department Bulletin 114; Department Circular 76.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
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Edwy B. Reid, Chief

OFFICE OF INFORMATION
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

ASSUMES DUTY OF PROTECTING ALASKAN FUR-BEARING ANIMALS

The administration of regulations designed for the protection of land fur-bearing animals, which formerly has been assigned to the Secretary of Commerce, became a duty of the Secretary of Agriculture July 1, in accordance with an act passed by Congress May 31, 1920. Under the new arrangement the Biological Survey of the United States Department of Agriculture is placed in immediate charge of the work—a task for which it is especially qualified, since, among other duties, it already has charge of important activities relating to the control and conservation of wild mammals and birds, administers Federal laws protecting birds and game, and has made important studies of fur-bearing animals.

The regulations issued on June 12 by the Secretary of Agriculture, which became effective July 1, in the main are those which have been in force heretofore. Among the important provisions of this Alaskan law are that no fur-bearing animal shall be killed when the pelt is unprime. The killing of any land fur-bearing animal at any time by means of the trap or device known as the "klips," or by means of any steel bear trap or any other trap with jaws having a spread exceeding 8 inches, is prohibited. The use of dogs for pursuing and killing land fur-bearing animals for which closed seasons exist is also prohibited. Likewise it is unlawful at all times to kill any land fur-bearing animal by means of strychnine or any other poison. The shipment of furs consigned for points outside Alaska, which may be made at any time, should be reported to the Bureau of the Biological Survey, United States Department of Agriculture, on appropriate blanks, which will be supplied for the purpose.

The black, glacier, and cinnamon bear, wolf, wolverine, squirrel, marmot, varying hare (rabbit), and Arctic hare may be killed at any time. Open seasons, varying in length according to the district concerned, are specified for muskrat, otter, mink, weasel, fox, and lynx. Fuller particulars regarding the regulations will be sent on request to anyone addressing the department at Washington.

BEEF IMPORTS FOR 1920 SHOW SLIGHT INCREASE OVER 1919

There was very little difference in the quantity of fresh and refrigerated beef imported into the United States in 1919 and 1920. The figures are taken from the meat inspectors' reports, Bureau of Animal Industry, United States Department of Agriculture. In 10 months ended in April, 1919, 27,673,105 pounds of fresh and refrigerated beef were imported. In the period ending at the corresponding time in 1920 the quantity of fresh and refrigerated beef arriving in the United States from foreign countries was 27,968,880 pounds, an increase of about a quarter of a million pounds.

Fresh and refrigerated meats of other kinds jumped to twice the quantity in the 10 months ending April, 1920, as for the same period in 1919. The figures show 7,933,377 pounds for 1919 and 14,979,663 pounds for 1920. But the canned and cured meats imported during the same periods show a remarkable drop from 126,624,348 pounds in 1919 to less than 2,000,000 pounds in 1920. This item accounts for the marked decrease in the total meat products imported. The total weight imported in the 1919 period was 168,602,911 pounds, but 1920 brought only 50,246,655 pounds.

FILMS WILL AID INTRODUCTION OF STOCK INTO SOUTH AMERICA

Introduction of American breeds of live stock and poultry into South America, particularly Argentina, is to be aided by the use of motion-picture films prepared for this purpose by the United States Department of Agriculture. The films also will show American methods of breeding live stock and handling it in its many phases from the farm to the home table.

The Argentine Government has shown special interest in the introduction of American methods of handling live stock, as it has, indeed, in the agricultural practices of the northern half of the continent generally. As evidence of this the Argentine Embassy at Washington has already purchased 10 films on these subjects for educational use in its country. It has frequently had the department's bulletins on agricultural questions translated into Spanish for distribution in Argentina.

The Buenos Aires & Pacific Railway has been another purchaser of films and still pictures for use along its system. Its representative in this country, Ricardo Videla, recently called at the department in quest of films showing the swine industry in the United States. He was enthusiastic over the opportunity of almost immediate success if efforts were concentrated on the introduction of American swine into Argentina. He proposed that a film be prepared by the department showing the swine industry in the United States, which could be used along the routes of the Buenos Aires & Pacific Railway.

The Bureau of Animal Industry welcomed the suggestion and preparations are being made for filming the various interesting phases of the subject. It is planned to show important swine-breeding farms, the work in the big Chicago packing houses, and the preparation of the product for the table. Pictures will be made of the various types of American hogs, and an effort will be made to give some idea of the vastness of the industry in this country.

LEADS TO BUILDING OF MANY BETTER FARM HOMES IN SOUTH

Beautifying and improving the farm homes is the newest phase of home demonstration work in the South, yet more than 1,500 farmhouses were built in the South last year according to plans advised by the Home Club agents; 2,736 were remodeled, 2,677 had lighting systems installed, 19,270 had kitchens improved and made easier to do work in, 26,811 labor-saving devices were made or purchased, and 29,666 front yards were beautified. When extension work with the women was started, 10 years ago, it aimed first to lighten women's work and to lift it out of the realm of drudgery and to aid in food problems. As these problems were being solved the questions of clothing, home conveniences, increased poultry and dairy production, sanitary improvements, food composition, food values, and practical arrangement and furnishing of the kitchen were brought up by the women. This led to demands for practical plans for the whole house and for information as to its best location, drainage, water supply, lighting devices, inside arrangement, and decoration.

OPPORTUNITIES FOR SUCCESS ON THE FARM

By E. T. MEREDITH, Secretary of Agriculture

Many young men in the various occupations of the cities find their minds turning to thoughts of the outdoor life of the farm, but they do not know how to start farming. It is the purpose of this article to point the way to a successful career as a farmer. I assume the young men in question are looking about for a job that will give them use for their muscles, combined with work for their brains and an outlet for their initiative—something that yields a good living and, most important of all, has prospects for the future.

A mere job is not enough. Even if the pay is good, there must be something to satisfy the ambitions of such a man. The man I have in mind does not want to be a wage earner all his life. He hopes for independence in middle age and the best of opportunities for his children, and he looks forward to an old age of comfort and freedom from financial worry.

More Chances Than They Realize.

For men of that type there are more chances on the farm than they may realize, and I should like to tell about a few of them very briefly.

We may imagine such a man putting himself through an examination something like this:

"How much money have you?"

"Not much."

"What do you know about farming?"

"Very little; but I'm good and strong, and hard work never scared me."

"What would you like to do for a living?"

"I would like to own a farm somewhere and work it. I'd like to live in decent style and marry and bring up a family."

It is peculiar how the idea always crops up that the first step in farming is to *own* a farm. "A farm of your own" is all right as a goal to look ahead to, but the man who lacks either the requisite money or experience will reach the goal quicker by starting in as a hired man. If he has money and needs experience, he will not find it profitable to acquire and operate a farm until he has gained that skill and judgment which will enable him to manage a farm successfully. The cheapest and quickest way to gain this skill and knowledge is by working on a well-managed farm in the summer and attending the winter short course in agriculture at the nearest agricultural college.

The young man without money will find working for wages on the farm the means of saving a little money and establishing his reputation as a skilled workman and a man of integrity. With a good reputation in these regards but little money is required to start in as a tenant farmer, where he can realize on the extra energy, the better skill, and the good management he is able to put into his farming business.

Road to Success Not Hard.

The road is open to the "farm of your own," and the road is neither longer nor harder for one who likes farming than is the road to success in other occupations, but the safest way is to start in at the bottom and climb "the agricultural ladder."

I do not remember any time when farm labor was in such great demand as at present, or when wages for unskilled farm labor were as good or when the standard of living on the farms was as high as it is now.

From all parts of the country comes the demand for men who are not afraid of work. If the schedule of the day's wages in the cities appears lavish when compared with the pay of the farm laborer, just remember that the latter gets his board and rent—and usually his washing and a lot of other things—and that in the cities, where the wages are higher, these things are commanding greatly increased prices.

In other words, what the farm laborer receives in cash is pretty nearly clear gain. Most of it can be placed in the savings bank and begin to draw interest, while the wages paid in the cities shrink to something much less impressive when all the bills are paid.

In the right sort of farming community and the right sort of farmer's household the hired man is received on his merits as a man. If he is a straight, clean sort of fellow, his good qualities will be appreciated in the country as readily as in the city. A great deal more so, I should say, for the individual human being seems to count for more out on the farm than he does in a city where great numbers of them are crowded together.

In short, it is strictly up to the man himself to make good, and if he does so he will have no reason to complain of his social status. The custom in many parts of the country and among many progressive farmers is to take the hired man into the family, while in industries the worker may never even see his employer and have no human contact with the man he works for. In the country we still have in considerable measure the old-time relations between the employer and the worker. The American farming regions form the great reservoirs of traditional American democracy.

Conditions Not What They Were.

And living conditions in the country are not what they were a generation ago. A lot of our notions about farm drudgery and hard living and isolation are ideas carried over from an earlier period, when there were no electric lights, no bathtubs, no rural free delivery, no good roads to speak of, and when an automobile on the farm was as rare as an airplane to-day.

If you want to judge what the farmer of to-day is buying for his home, read the advertising in any of the leading farm journals. It would not pay the manufacturers of automobiles and pianos to carry advertising in farm papers if they were not selling goods of that character to the readers; and when we find all kinds of luxuries and high-grade necessities advertised in the rural press it means that there is a market for the things that make living more comfortable and easy.

Good roads and the automobile have worked wonders in removing the greatest hindrance to progress in farming sections. The farmer, as a rule, is no longer completely isolated, but, generally speaking, is within easy reach of some thriving, up-to-date market center, and often within motoring distance of a great city.

Moreover, the movement to draw the farmers together in social life and community achievements is just beginning. With the active help of the Department of Agriculture and the State agricultural colleges community enterprises are being promoted so that the farmers may have their clubhouses for recreation and business.

The women are coming together more and more to work for the social life and to raise the standard of education and culture.

The little red schoolhouse is giving way rapidly to better buildings that would look well in any city. Such schools serve a large area and give the farmer's children the same educational advantages as the city children.

Initiative and New Ideas.

The best of it is that all these efforts for the betterment of country life are in their early stages. There is great opportunity for the young man with initiative and new ideas to help make his community just what he wants it to be. And

that is a lot more fun than finding something ready-made awaiting you.

The business of agriculture is different from that of most industries. It gives the all-around man a chance to use his talents. It is not a matter of doing the same thing over and over again day after day as in some factories, for every month and every day brings its own special problems on the farm, and the man who is ingenious and clever at doing a variety of things has a chance to make good.

In taking a job on a farm, look for one that offers employment for at least nine months of the year. While it may not be possible to get a job for the full 12 months, that is not necessarily a great disadvantage. Find out where the nearest agricultural college is located and arrange to take during the slack period the short course, which runs 12 or 14 weeks during the winter.

In these institutions tuition is free to citizens of the State, and the subjects taught include such practical matters as stock judging and feeding, soils and field crops, and under the subject of farm management, such topics as marketing, cost accounting, and other business details of farm operation. Under farm engineering there is a course in the operation of farm machinery and implements, including tractors, also the planning of farm buildings and the general laying out of the land to secure best results.

It will be seen that with nine months of practical work in the year and three months of training in the agricultural college, a man who wants to get ahead can become a scientific farmer while he is saving up the capital to become an owner.

TEXAS SETS NEW RECORD MARK IN DIPPING CATTLE FOR TICKS

"Get the last tick!"

With this goal in view cattle owners and citizens in Texas this year set a new high mark in cattle dippings for the months of April and May. Reports from the Federal tick eradication offices at Fort Worth and Houston, Tex., show that during April 2,051,472 dippings of cattle were supervised by Federal, State, and county employees in that State. During May the total number of official dippings reached 2,352,756.

In Madison County, which was released from quarantine only last December, cattle owners are "mopping up" the few remaining ticks, and also are rapidly introducing pure-bred sires—a step which could not safely be taken before because of the danger from tick fever. The county received 125 registered bulls during May. In other counties improvement in the condition of cattle has been noticed by stock owners, who are active in cleaning their pastures of the last fever ticks.

This rapid progress, according to the Federal officials supervising the work, shows the confidence of cattle owners in the permanent benefits following destruction of the tick. But even more noteworthy is the systematic manner in which Texas as a whole is supporting the zone law and taking up the work of tick eradication in the different zones as provided for by the State legislature. In the past the State policy did not require the dipping of cattle except when tick exposure was demonstrated, but this year all cattle are included in the dipping activities and it is hoped this practice will continue. The State Live Stock Sanitary Commission of Texas is supporting the Federal policy of dipping all the cattle, with the result that pastures can be practically freed from ticks in one season. That has been the result elsewhere when all cattle have been dipped.

Representatives of the United States Department of Agriculture in Texas are of the opinion that if the systematic dipping of cattle continues to be prosecuted during the months of June, July, and August as rigorously as during April and May, conditions will be such that a number of counties in zone 1 will be ready for release from quarantine early in the month of September. If such favorable conditions can be brought about it would be of very great advantage to cattle owners and the industry generally by permitting the free movement of cattle from released counties during the autumn months.

Indian Mango Lives Down Bad Reputation—One of the Great Fruits of the World

The East Indian mango is one of the great fruits of the world. To those who have really tasted the good sorts of it the peach loses its place of highest honor. But the early travelers were more interested in describing its peculiarities than in extolling its wonderful fragrance and the depth of its flavors, for they told the plum and cherry eating inhabitants of the British Isles that the mango resembled a ball of tow soaked in turpentine and molasses, and said further that in order to eat it you must undress and climb into a bathtub and that after you ate it you must comb its yellow hairlike fibers out of your teeth.

Was Much Maligned.

No other fruit in the world has been so maligned. The mango trees, which are now loaded with their golden fruits in south Florida are so valuable that the mayors of the towns of south Florida are being beseeched to keep the boys from stealing the fruit from the trees, not because they are balls of tow soaked in molasses and turpentine but because, as they hang on the tree, they are worth 25 or more cents apiece, and a boy can eat up a five-dollar bill's worth in the time it takes to tell about it.

The Office of Foreign Seed and Plant Introduction of the United States Department of Agriculture has assembled, through the work of its explorers and through exchange with the British East Indian departments of agriculture, one of the largest collections of selected mango varieties in the world. There are now fruiting at the Plant Introduction Field Station, Miami, Fla., about 20 varieties this year, and these represent the selections from more than 70 sorts of this great fruit. Some of these have scarcely more fiber in them than a freestone peach and can be cut open lengthwise and eaten as easily with a spoon as a Rocky Ford cantaloupe. They have an indescribably agreeable aroma reminiscent of pineapples. The mango tree, when it is in bearing, is a gorgeous sight, for it is a large long-lived tree and the golden-yellow fruits as they hang in great clusters from the dark-green foliage make one of the great tropical plant sights of the world.

A Remarkable Sight.

To anyone living within reach of the Miami Plant Introduction Garden on Brickell Avenue it would be worth a long motor ride to see this remarkable sight.

The mango has come as a tree crop in Florida and, although it is tender and can not be grown above the line of heavy freezes, it is destined to add greatly to the charm of life in the tip end of the Florida peninsula.

Cotton fiber of the crop of 1919 was shorter than that of 1918. The cotton-crop specialist of the Bureau of Crop Estimates has ascertained that 91.2 per cent of the crop of 1919 was less than 1⅛ inches in length, or appreciably more than the 88.1 per cent of the crop of 1918. For a length of more than 1¼ inches the percentage of 1.3 for 1919 was under that of 1918, which was 1.5 per cent.

Save Your Profits from the Boll Weevil— Dust Cotton Now With Calcium Arsenate

The season is at hand when the cotton farmer will watch his profits falling to the ground in punctured "squares," the work of the boll weevil. Fortunately, however, the farmer is less helpless than he used to be. It is possible to control the boll weevil, the United States Department of Agriculture has found after long experimentation, by dusting the plants with calcium arsenate. An adequate supply of the chemical is obtainable this year and considerable dusting machinery is available, though not sufficient to meet the needs.

It should be borne in mind, the specialists say, that in poisoning for boll-weevil control extermination is not secured and should not be attempted. The result aimed at is a sufficient reduction of the weevil infestation to permit maturing a full crop of cotton. About 60 per cent of the squares fall before reaching maturity even in the absence of weevils. The present system of weevil poisoning is expected to keep the weevils controlled to such an extent that they will no more than offset the normal shedding—will puncture only about as many squares as would have fallen in any event.

This means, usually, that the weevils are permitted to multiply unmolested until they become sufficiently numerous to puncture more forms than would shed normally. Poisoning is then started and continued until the plants have had time to develop as many bolls as they will be able to mature. Poisoning is then stopped and the weevils are allowed to resume multiplication. Remarkably large increases in yield frequently result from a comparatively slight degree of control for a short time. The effect is cumulative, however, and can only be secured by starting the applications at the right time and repeating them at the correct intervals. The specialists urge planters to conduct the operation thoroughly or not to attempt it at all.

Have Poison Tested.

The right kind of poison is dry powdered calcium arsenate containing not less than 40 per cent arsenic pentoxid, not more than three-fourths of 1 per cent water soluble arsenic pentoxid, and having a density of not less than 80 and not more than 100 cubic inches to the pound. To be sure that it is right, samples should be sent to the department's Delta laboratory at Tallulah, La. An immediate report will be furnished showing whether or not the material is satisfactory for cotton dusting. It is of the greatest importance to be sure that the material is right. If it contains too little arsenic, it will not kill the weevils. If it contains too much water soluble arsenic, it will kill or injure the plants. Mixtures of all kinds are condemned. Calcium arsenate may be kept as long as four years if it is stored in a dry place.

There is always the possibility of poisoning both men and horses working in calcium arsenate dust. Though no serious injury has ever been reported, the specialists urge the taking of all reasonable precautions. Personal cleanliness is the most important. Operators should be required to bathe as soon as they have completed the dusting work and under no circumstances should they be permitted to eat or drink without washing their hands and faces with soap and water. Horses and mules used to pull the dusting machines should be muzzled to prevent the possibility of poisoning by eating grass and weeds along the rows.

Generally speaking, at least 5 pounds of calcium arsenate per acre should be used.

The best time to dust is when the humidity is high, the air calm, and the plants moist with dew. It is necessary that every portion of the cotton plant be covered by the fine particles of poison dust and this can not be done when the wind is high or the plants dry. It is usually necessary, therefore, to do nearly all of the dusting work at night, early in the morning, or late in the evening.

Three Dustings Usually Enough.

The first application should be made when the weevil injury reaches 10 to 15 per cent of the bolls, and the effort should be to hold it below 25 per cent. The poison reaches and kills only the adult weevils and has no effect whatever on the immature stages developing in the bolls and squares. Three applications are usually sufficient to effect the desired measure of control. They should be about four days apart. Poisoning should not be attempted except under conditions that will justify a sufficient machinery outlay to go over all the cotton poisoned at about four-day intervals. It is advisable to repeat an application immediately if a drenching rain falls within 24 hours after treatment.

It is sometimes advisable to poison heavily infested portions of the field earlier in the spring. The heaviest infestation is usually near timber or other hibernation quarters, and early poisoning of a few acres may greatly reduce the infestation of the entire field and delay considerably the necessity for general poisoning.

Weevil poisoning, the specialists say, is a plantation and not an individual field proposition. It is unsafe to expect each tenant to poison his crop. Much better results are obtained if the plantation management undertakes all poisoning operations.

Three types of satisfactory dusting machines have been developed—the hand gun, the wheel-traction machine, and the engine-power machine. A hand gun should not be expected to cover more than 15 acres of cotton, and it is safer to figure on one gun for every 2 acres. Even on this basis, hand guns should not be relied upon when there is a considerable acreage of cotton. The hand gun is of great value for early season work on spots of high infestation and for use in conjunction with power machinery for treating spots that can not be reached with the power machine. The medium or large planter, therefore, needs a few hand guns to supplement his power machinery.

Cart Duster Covers 75 Acres.

A wheel traction or cart duster can be made to take care of about 75 acres. Its operation requires the work of a man and two mules. It is simpler in construction and easier to handle than the engine-power machines. This type was developed by the Department of Agriculture to meet the need for a machine between the hand gun and the engine-power duster.

An engine-power duster, theoretically, will take care of about 160 to 200 acres of cotton, but it is cumbersome and difficult to handle successfully. A machine requires two or more mules and two men.

The department specialists are working now toward the development of a duster that can be attached to a saddle and operated from mule back or a single-wheel duster to be run between the rows and drawn by one mule.

As most of the dusting is done at night, artificial light is necessary. The only lighting system that has given satisfaction is a special model of acetylene light using a compressed carbide cake for fuel. It is compactly constructed and the cart is comparatively low.

The cost of poisoning operations for the season may be expected to run from $7 to $10 an acre. Gains in seed cotton as the result of poisoning properly done will run from 200 to 1,000 pounds.

The first question to be decided by anyone contemplating poisoning, the specialists say, is whether or not his conditions are such as to enable the operation

to be profitable. The soil is sometimes so poor that, even if a complete normal yield were secured, the crop would not pay the cost of poisoning. Regardless of conditions, it is ordinarily best for a farmer to undertake poisoning at first on only a portion of his cotton, selecting the most fertile soil, which is subject to the heaviest weevil injury. A very accurate check plat should be conducted. Without this the matter of gain or loss is likely to be problematical. Several fairly uniform cuts should be selected, subject to about the average degree of weevil infestation, and only one-half of each cut treated. A little experience of this kind will soon make clear the conditions under which the grower can or can not poison profitably.

THICK COTTON SPACING GIVES BETTER CROPS, EXPERTS FIND

(*Continued from page 1.*)

original stalks, and therefore can not come into bearing nearly so early. This might not reduce the yield during a long growing season, but where the boll weevil has to be contended with the secondary stalks rarely succeed in producing bolls and the entire yield is confined to the portion of the plant above the topmost vegetative branches.

Yields Shown by Experiments.

When the plants are thick in the row all the branches are fruiting branches, and the plant consequently produces bolls from bottom to top. More than that, it produces them early and matures them to such an extent that they are practically boll-weevil proof before the boll-weevil investation reaches the danger stage.

Experiments made by the Department of Agriculture some time ago showed that cotton plants 3 inches apart produce a great deal more lint than plants 3 feet apart, and that the same is true of all intermediate stages. In other words, the widest spacing is the worst system, and any narrowing of the spaces down to 3 inches is an improvement. Below that the crowding may be injurious. These results have been confirmed recently by experiments carried on at State stations. Here, for instance, are the results of a series of experiments carried on at the Delta Experiment Station, Stoneville, Miss.

	Pounds per plot.
Plants 8 inches apart	117
Plants 12 inches apart	93
Plants 16 inches apart	90
Plants 20 inches apart	59
Plants 24 inches apart	57
Plants 28 inches apart	56
Unthinned or left as placed by the planter, average of 2 plots	134½

When two plants were left together, at these same distances between the hills, the results were as follows:

	Pounds per plot.
2 plants in the hills, 8 inches apart	112
2 plants in the hills, 12 inches apart	109
2 plants in the hills, 16 inches apart	99
2 plants in the hills, 20 inches apart	92
2 plants in the hills, 24 inches apart	86
2 plants in the hills, 28 inches apart	71

Late Thinning Essential.

It must be remembered by planters practicing the thick-spacing system that another change from old methods is necessary at the same time. When cotton is spaced far apart it is thinned early. When close spacing is adopted, the thinning must be delayed until comparatively late in the season. If the thinning is done early, vegetative branches are likely to appear even when the plants are thick in the rows, thus offsetting such advantages as might be gained. It is not possible to fix any definite time at which thinning should be done, but it is safe to say that the plants should be from 6 to 12 inches high instead of from 2 to 4 inches high, as has been customary in the past. Persons who, either by design or because they are unable to get labor for thinning work earlier, postpone their thinning until late in the season should adopt the single-stalk, close-spacing system. If, late in the season, they chop out the cotton to conform with the old-time standard, they run the risk of greatly reducing their yields.

Close spacing and delayed thinning does not mean that there must be no cultivation until after thinning. Cultivation to control weeds, of course, must be undertaken whenever the development of grass or weeds shows that cultivation is needed.

Best Results in Cooperative Marketing Are Had Through Sound Business Methods

To secure the greatest results, cooperative marketing enterprises must be organized and operated along sound business lines, say experts of the Bureau of Markets, United States Department of Agriculture, who cite two instances to prove their point.

Sees Error of His Ways.

A sweet-potato cooperative marketing association was formed in a New Mexico county that boasted seven sweet-potato warehouses. Six of these warehouses were ignored in organizing the association. The owner of the seventh warehouse was permitted to hold 51 per cent of the stock. With such a monopoly, this gentleman was able to control the business of the association, with the result that all the sweet potatoes were stored in his warehouse, and the other warehousemen faced the threat of being driven out of business. However, the seventh warehouse owner was finally made to see the error of his ways, and through the assistance of the field marketing agent of the United States Department of Agriculture the association has been reorganized upon a truly cooperative basis.

In the adjoining county were two men who had made a considerable fortune in sweet potatoes, largely through their ability to store their potatoes in their own warehouses. The other sweet-potato growers were able barely to eke out a small profit, because they were compelled to sell their produce immediately. The two warehousemen finally were prevailed upon to interest themselves in the formation of a cooperative association. The association was thereby enabled to negotiate a loan from the bank for the construction of a warehouse to take care of the pooled produce. This was such an encouragement to the farmers that it was soon necessary to construct another building because of a considerable increase in crops.

The two leading sweet-potato men in this association do not hold a majority of the stock. The organization is a cooperative one in the full meaning of the word. Each member is on an equal footing with every other member. At a recent meeting of the association it was announced that through the combined efforts of the farmers $40,000 in additional profits had been secured, with all the seed sweet potatoes yet to be sold.

INCREASING HOME EFFICIENCY.

Increased home efficiency is one of the popular projects in the counties in which home demonstration agents are maintained by the United States Department of Agriculture and the agricultural colleges. Last year 166 counties in the North and West carried on county-wide campaigns for increased home efficiency, and 1,077 farm families in the same territory were assisted during that time in rearranging farmhouse or kitchen as an important first step in efficient housekeeping.

In the 15 Southern States last year 1,163 new houses were built according to plans advised by the home demonstration agents, 2,736 remodeled, and 26,811 labor-saving devices made or purchased.

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MARKETING OF SOUTHERN CORN REQUIRES CONCERTED ACTION

Those Having Surplus Should Attempt to Dispose of It to Neighbors

All Corn Growers Should Acquaint Themselves with Requirements of Federal Grain Grades—Cooperative Marketing Desirable

Because the Southern States are importing millions of bushels of corn annually, while certain sections of the South are producing surpluses, the United States Department of Agriculture recommends the introduction of more adequate marketing facilities in sections of abundance and standard practices regarding preparation for market. To realize these ends will require concerted action on the part of communities concerned. The department suggests that southern dealers and consumers handle and use southern grain wherever possible, and that local dealers' associations and chambers of commerce which have not done so already pass resolutions urging members to use native corn, and also hay, whenever available.

Since as much of the corn as possible should be used in the community where grown, every farmer should feed as much stock as he can. Those having a surplus should endeavor to dispose of it to neighbors. In this connection the advantage of some central agency to bring buyers and sellers together is pointed out.

Utilizing Storage Facilities.

In many instances cotton warehouses, oil mills, and similar buildings can be used as temporary storage places, thus permitting growers to hold their crop until the market is favorable. However, if they desire to store their crop on the farm, special care should be taken to provide cribs that will prevent damage by weather, weevils, and other agencies. The man selling corn near home has a larger margin of profit, because there are no freight charges.

There is usually a considerable difference between the price of old corn and new corn from the North. That part of the new crop from the South which can be marketed before the new corn from the North arrives should get the advantage of this difference in price. Good prices can not be obtained, however, for any crop unless special care is exercised in harvesting, grading, and preparing it for the market. Husking rather than jerking, proper storage so as to prevent heating, and sacking in containers of proper size are all matters of importance. Corn that is to be shelled should usually be husked in the field when it is gathered. If corn is jerked it must be husked in the crib, adding labor and expense, and then shelled, or it must be shelled with a "shuck sheller," a machine that usually is not very satisfactory.

PROTECT THE WOODS FROM FIRE.

A tree will make a million matches—a match may destroy a million trees.

Take no chances with lighted matches, tobacco, brush, or camp fires.

Forest destruction is quick — forest growth slow.

Burned timber pays no wages.

When fire is discovered, put it out if you can. Get help if you need it.

Are you practicing fire prevention and forest protection?

Learn About Federal Grades.

Practically all sales of shelled corn in this country are now made on the basis of Federal grades established by the Secretary of Agriculture. The Federal law applies to all interstate shipments which are made by grade, and requires that they be sold according to the Federal grades. Even though a given transaction does not come under this law, the buyer naturally is inclined to judge the corn according to these grades and make his price correspond. Therefore more widespread knowledge of proper grading is highly desirable for southern corn growers.

The Federal standards divide shelled corn into three classes—white, yellow, and mixed. The particular demand in

(*Continued on page 8.*)

HOW TUBERCULOSIS SPREADS TO EVERY ANIMAL IN HERD

Prompt Control Measures Against Infected Individuals Necessary

Hogs Contract Disease from Cattle—Show Such Extensive Lesions That Packers Refuse Other Animals from Farm

The extent to which bovine tuberculosis, if uncontrolled, runs its course through a herd of cattle is shown in a recent report received by the United States Department of Agriculture from one of its field inspectors in Illinois. Every animal in a herd of grade Holsteins and Jerseys reacted to the tuberculin test. The herd consisted of 14 cows, 2 calves, and 2 bulls. Upon post-mortem examination 6 of the animals showed such extensive lesions that the entire carcass was condemned and destroyed. All of the other reactors likewise showed lesions though not of such an extensive nature as to necessitate destruction of the carcass. The fact that every animal in the herd reacted and showed lesions makes the case one of the most striking ever recorded.

Swine Owners Cautioned.

The danger of tuberculous cattle to swine was further demonstrated by the sale of hogs from this farm early in the year. The first lot of 21 hogs sold showed such extensive lesions of tuberculosis upon post-mortem that the packing company refused to accept the remaining 50. These were subsequently sold to a local shipper and their identity and destination are not known. If the swine are still alive they are undoubtedly a menace to other stock. The Bureau of Animal Industry cautions swine owners against purchasing stock from farms where either tuberculous cattle or swine are kept.

The bureau inspector also reported that a week after the shipment of hogs had been made, a milk cow—a chronic cougher—had died and the younger stock was allowed to devour the carcass. Such a practice is responsible for a great deal of

tuberculosis among swine in the United States. According to bureau officials, the facts stated should cause any livestock farmer who finds tuberculosis among his hogs or whose shipments of hogs are refused because of extensive lesions of that disease, to have his herd of cattle tested promptly. Unless the origin of infection is known and removed, tuberculosis is liable to run its course among all the cattle and swine on the farm.

STANDARDIZATION OF PRODUCE INSURES LARGER DIVIDENDS

New Mexican growers of pinto beans avow that before long "New Mexican pinto beans" will be a regular article of food in every household in the country. Already the pinto-bean market has extended considerably beyond the boundary lines of the producing State.

Although this has been due in large measure to cooperative marketing, say specialists of the Bureau of Markets, United States Department of Agriculture, certain conditions had originally to exist in order to make possible the success that is being achieved. One of these was the standardization of the product.

Up to a few years ago New Mexico pinto beans were grown in a variety of colors. There were green spotted beans, green and white beans, salmon and white, black and white, and many others. Then the county agent sought to interest the growers in producing pinto beans of one variey—salmon and white. The members of the boys' and girls' clubs were instructed that, in selecting beans for seed, only the salmon and white variety should be chosen. The result has been almost total elimination of every variety except salmon and white.

What has been done with pinto beans, say the bureau's representatives, can be accomplished everywhere by the standardization of farm produce. It may require a little more time to select seed carefully and to use proper grading methods, but the time will be well spent, for higher and uniform quality of produce means higher prices.

MEETING WITH GOOD RESULTS IN COMBATING PEA-ROOT ROT

The means for combating pea-root rot which the United States Department of Agriculture recommended to a large number of pea growers the past season are producing good results, according to reports received from widely scattered sections where the pea harvest has begun. For the past two years the department's specialists have been investigating this disease, which is found in almost every section where commercial pea growing is carried on. The pea growers were advised that long rotation with other crops is required to starve out this malady and those who this year have avoided diseased land, and likewise have departed from the custom of transferring soil from old pea fields, have had good results. In the past the transfer of soil has been practiced in some sections to carry the nitrogen-gathering root-nodule organism from one field to the other.

Now that the department's scientists have considerable information regarding the character of the disease and how to avoid its spread, pea growers have been advised to watch their fields very carefully, especially in the older pea-growing sections, to discover the first signs of this disease. Growers have been advised that wherever the malady appears they should institute rotation without a single season's delay, for only in that way can the rapid spread of root rot be checked. A four-year rotation is advised, except in the Middle West, where even longer rotation has not always been successful. The department is also engaged in breeding varieties of peas resistant to root rot, but some time must elapse before these are ready for commercial use.

Progress of Agriculture in Alaska Shows Possibilities Along Many Lines

Most people regard Alaska as a gold and fur country, yet the United States Department of Agriculture's experiment stations located in Alaska have demonstrated that Alaska is not only a food-producing country but that if the latent resources of the Territory are developed the Alaska wheat fields are destined to play an important part in the economic life of the Nation.

The twenty-first annual report of the Alaska Experiment Station is now available. The volume is truly a romance of agricultural accomplishment. When it is considered that one of the experiment stations is located in the Yukon Valley only 75 miles from the Arctic Circle, where the yearly frost-free period is about 97 days, some appreciation can be had of the difficulties that prevail.

Work of the Various Stations.

According to the report, the Sitka station propagates and tests, and to some extent disseminates, all manner of plants that promise to be useful in Alaska. The chief line of work at the Fairbanks station is the growing of grain, the testing of the adaptability of varieties of grain, and the dissemination in small quantities of the surplus seed grain produced. At Rampart, the chief lines of work are the production of new varieties of wheat, barley, and oats by means of hybridization, the testing and selection of hybrids, and the increase of those proving valuable. Hardy alfalfa is grown, as well as vegetables, for the purpose of ascertaining the best cultural methods to be pursued. Cattle and sheep breeding work is conducted at the Kodiak station, and at Matanuska experiments are made with growing grain and sugar beets. A small nursery has also been started here for propagating hardy nursery stock for distribution in the Matanuska Valley.

In 1918 a distribution of seed grain was made to a number of farmers in the Tanana Valley in an effort to induce them to begin grain production on an independent basis. The results were so satisfactory that the experiment was repeated in 1919. In that year 22 farmers in the Tanana Valley produced 1,128 bushels of spring wheat, 2,811 bushels of oats, and 121½ bushels of barley. During the same season the station at Fairbanks produced 303 bushels of spring wheat, 774 bushels of oats, and 125 bushels of barley. A small flour mill was installed at the Fairbanks station in 1918, where Alaska-grown wheat has been milled into an excellent bread flour.

The 1918 report of the Alaska Agricultural Experiment Stations can be had upon request of the United States Department of Agriculture, Washington, D. C.

ANNOUNCES GRAIN INSPECTORS.

Two announcements regarding the administration of the United States grain standards act have been prepared by the Bureau of Markets, United States Department of Agriculture.

The first, Service and Regulatory Announcement 63, designates the supervision districts and the district headquarters for all portions of the United States, and supersedes a somewhat similar order of the Secretary dated July 19, 1917.

The second announcement, No. 64, lists the grain inspectors, according to the districts in which they will operate. The announcement gives the names and addresses of the persons appointed under the grain standards act to inspect and grade shelled corn, wheat, and oats, and the points where these grains will be inspected.

Cooperative Grain Elevator Companies Given Assistance in Administration

In the United States there are some 14,000 cooperative marketing associations. To many of them the Bureau of Markets, United States Department of Agriculture, has given valuable assistance by furnishing specimen copies of by-laws and by indicating proper methods of organization and administration.

"The Organization of Cooperative Grain Elevator Companies" is the title of Bulletin No. 860, just issued by the United States Department of Agriculture upon this subject. The bulletin is addressed to those who desire assistance in the formation of cooperative grain elevators, but the subject matter is treated in a manner that makes the bulletin of interest to those engaged in other lines of cooperative endeavor as well. The scope of the pamphlet is limited to matters regarded as fundamental and general, and it is intended that the suggestions and recommendations be considered with reference to and in connection with special cooperative laws and the laws governing corporations in each of the several States of the Union.

Rest Upon Economic Need.

The bulletin points out that the success of any organization, whether cooperative or for private profit, rests upon social or economic need, a sound organization plan, and efficient management. It then details the various factors that produce these basic conditions. It dwells upon the organization of joint stock companies, private corporations of the capital-stock form, and cooperative associations incorporated under special cooperative law, the three common forms of organization of farmers' elevator enterprises in the United States.

Under the chapter of preliminary survey, matters of local conditions, prospective membership, capital, volume of business, and methods of survey are covered. Then the processes of actual organization are discussed and a suggested form of by-laws given.

Detailed Form for Administration.

The bulletin also contains some general suggestions regarding the selection of the plant, the choice of directors and a manager, a maintenance agreement, emergency capital, and speculative tendencies. The appendix gives detailed forms to cover every phase of the administration of the organization from a capital stock subscription contract to a form of stock certificate, and service and maintenance agreement.

The pamphlet has been written by experts in matters of cooperative associations. It is the composite result of actual experience, and should prove of valuable assistance to those interested in cooperative marketing. The bulletin may be had upon request of the United States Department of Agriculture, Washington, D. C.

SUGGEST SYSTEM FOR MAKING PORK PRODUCTION PROFITABLE

The farmer who provides pasture for his hogs whenever possible is the one who makes the production of pork most profitable, says the United States Department of Agriculture in Farmers' Bulletin 951, "Hog Pastures for the Southern States." In epitome, the advice given in the bulletin is:

Green herbage is essential to the economical production of pork.

A permanent pasture supplemented with quick-growing, heavy-yielding, temporary forage crops is most satisfactory.

Alfalfa, where it can be grown, is undoubtedly the best forage crop for hogs.

On an average 1 acre of permanent pasture should be kept for each brood sow.

Some of the heavy-yielding, quick-growing forage crops will add much feed to the quantity produced by a permanent pasture.

There should be mature crops, such as corn, soy beans, peanuts, or velvet beans, for finishing the hogs in the fall. Oats, rye, and wheat give satisactory winter grazing.

Green forage alone is little better than a maintenance ration. If rapid gains are desired, the hogs should have a liberal allowance of grain. The rule should be "All the grain they will eat without waste."

Growing forage crops and "grazing them off" on the land is an efficient method of improving soils depleted in organic matter.

The exercise obtained in grazing exerts a beneficial influence on the health of hogs.

The various forage crops for hogs, each discussed in detail, are corn, sorghum, winter grains, alfalfa, black medic and hop clover, red clover, crimson clover, soy beans, velvet beans, cowpeas, peanuts, chufas, sweet potatoes, mangels, and rape.

Suggested cropping systems are given, but the statement is made that it is impossible to plan a succession of crops that will be satisfactory for any large number of farms and that each farmer must plan his own system according to his conditions of climate, fertility, and layout of fields.

Copies of the bulletin can be had free on application to the Division of Publications, U. S. Department of Agriculture.

MILLION-DOLLAR SERVICE TO CANTALOUPE INDUSTRY

"The assistance rendered the cantaloupe growers and shippers in the Imperial Valley of California by the Bureau of Markets, U. S. Department of Agriculture, has saved the industry $1,000,000 a season," was the statement recently made by the growers and shippers concerned.

According to marketing experts of the Bureau of Markets, the cantaloupe interests in this section have periodically experienced great difficulty in marketing their crop, a highly perishable one, and a crop that should be sold promptly to avert financial disaster. Production has repeatedly outrun distribution.

Some years ago when the bureau established its news service in connection with the volume of receipts and the prices paid for fruits and vegetables at large marketing centers throughout the United States, a special representative was sent to the cantaloupe-growing section to assist the shippers with the efficient distribution of the crop during the rush season. Some idea of the size of the job can be had from the fact that 5,744 cars of cantaloupes were shipped in 1917, 4,405 in 1918, and 7,799 in 1919.

Similar service is rendered other industries by the bureau's representatives, whether it is peaches, sweet potatoes, cotton, wool, oranges, apples, or any other extensively used commodity.

MORE INTEREST IN HOT LUNCHES.

Teachers and parents are commencing to realize the importance of hot school lunches, and the home-demonstration agents sent out by the United States Department of Agriculture and the State colleges are helping to establish hot lunches in communities which are awake to their value. Last year these extension workers, who are trained in home economics, helped establish hot lunches in 2,929 schools. The work will be continued this year on an even larger scale. In some counties a wall of prejudice against the innovation has to be broken down before it can be started. Where this is true, the success of the hot lunch in one school, where it has been established, is usually followed by a demand for something similar in all the adjacent schools.

Weekly News Letter

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Edwy B. Reid, Chief

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The News Letter is a news service, and editors are invited to reprint from it with or without credit.

GROWERS SHOULD HOLD COTTON AND SELL AS NEEDED BY MILLS

Approximately 70 per cent of the country's cotton crop is marketed during four months of the year—September, October, November, and December—according to reports to the Bureau of Crop Estimates, United States Department of Agriculture. The remaining 30 per cent is sold during the other eight months. On the basis of a 12,000,000-bale crop this means that 8,400,000 bales are sold during the four months. The mills do not consume cotton at that rate; in fact, consumption is fairly uniform throughout the year. Therefore, during the four-months period the supply is greater than the demand, with resultant low prices to the farmer.

If the mills purchased the crop direct, lower prices of cotton goods to the public might result. But that is not the procedure. The crop is bought early in the season by merchants who supply the mills with the raw material as it is needed. And when the cotton is finally sold to the mills it is usually at a considerable advance over the price paid the farmer.

Cotton producers would correct this situation and at the same time secure better prices for their cotton by carrying the crop and selling it as it is needed by the mills, says the Bureau of Markets of the Department of Agriculture. This does not mean that the services of merchants or brokers in getting the crop from the farmer to the mills are not needed, because frequently the farmer is not able to contract directly to advantage with the mills, and, of course, the farmer would not be paid for his crop at one time, as at present, but he could warehouse the cotton and negotiate loans upon the warehouse receipts. The increased return for his crop would more than take care of the warehousing expense and interest charges.

This is but one of many conditions that the Bureau of Markets is trying to correct through educational campaigns and individual advice to farmers.

MAKE EXCELLENT RECORDS IN DEVELOPING NEW RICES

Very favorable reports have just been received by the United States Department of Agriculture from the South regarding the condition of the extensive plantings made this spring of Acadia and Fortuna rice—new varieties developed by the department at the Crowley Rice Station in Louisiana, in cooperation with the Louisiana Agricultural Experiment Station. These two rices are among the best selected from a study of more than 2,000 different kinds at the Crowley station. Their importance is demonstrated in part by the large yields obtained. Last year under field conditions an average yield of 5,155 pounds of rough rice was obtained from the Acadia on 48 acres and an average of 2,775 pounds of rough rice from the Fortuna on 35 acres of very old land. Both of these records are excellent and give an indication of the large production which may be expected this year on a much larger acreage, if weather conditions continue favorable. Eventually it is the purpose of the department to make these new varieties of seed available to all growers, through the markets, thereby benefiting them and the industry as a whole.

TAKE STEPS TO OVERCOME SHORTAGE OF BALING WIRE

Something new in the way of "shortages" has developed. This time it is a shortage of baling wire for this season's hay crop. If the horses go unfed, it will not be because of lack of hay, but because of the lack of bale ties to bind the hay for shipment.

Active steps taken by the Bureau of Markets, United States Department of Agriculture, to aid in overcoming this shortage of bale ties have resulted in one factory, with an output of 800 bundles a day, resuming work to capacity, and several other large manufacturers stating their willingness to do everything possible to meet the demand.

The Bureau of Markets has communicated with the principal manufacturers of wire and the leading bale-tie factories, urging them to increase their production. A survey of the entire situation disclosed that the general scarcity is due mostly to strikes, transportation difficulties, and shortage of wire.

As distribution is one of the main reasons for the present shortage, the Department of Agriculture has suggested plans to manufacturers by which it is hoped to supply those sections of the country first where the need is most pressing. It is believed that if the manufacturers proceed along the lines suggested, sufficient bale ties will be manufactured and shipped to dealers to supply the demand with but little loss to the hay crop.

CLASSIFICATION OF LEDGER ACCOUNTS FOR CREAMERIES

A "tally stick" used to be regarded as the acme of bookkeeping accomplishment. By easy stages this gave way to the single-entry method of bookkeeping. The double-entry system was subsequently developed.

"A Classification of Ledger Accounts for Creameries" is the title of United States Department of Agriculture Bulletin 865, recently issued. This bulletin emphasizes the importance of the use of a definite and logical classification of accounts for keeping the cost and financial records of any business and describes in detail a classification that can be used advantageously by creameries. The classification of accounts presented in this bulletin if adopted will insure an adequate basis for correct operating and financial information, which will be uniform from year to year, thus enabling comparisons of operating efficiency.

The bulletin has been prepared by experts in accountancy in the Bureau of Markets after a careful study of the methods pursued at a number of creameries, and should prove of valuable assistance to creameries in recording their costs and the financial activities of their business comprehensively and simply.

The bulletin can be had upon application to the United States Department of Agriculture, Washington, D. C.

The popularity of Marquis wheat is still gaining in the spring-wheat States. This variety contributed 67.8 per cent of the spring-wheat crop of 1919 in Minnesota, 47.5 per cent in North Dakota, 63.8 per cent in South Dakota, and 71.4 per cent in Montana. It was hardly in evidence in the sowings of 1914. The yielding quality of the wheat is greater than that of any other variety except Durum, a variety that is gaining in popularity, although less than Marquis.

"BETTER SIRES—BETTER STOCK" GOES AHEAD

BETTERS HIS SIRES.

Illustrating the results of the "Better Sires—Better Stock" movement, a Virginia farmer owning 40 grade cows and ewes recently enrolled in the campaign. He listed no purebreds of any kind, but agreed to sell his grade bull and to get a purebred ram. Hereafter he will use purebred sires only.

GAME BIRDS IN LIVE-STOCK RECORDS.

The aggressive character of live-stock improvement activities in Pulaski County, Va., is illustrated by a recent side light in the "Better Sires—Better Stock" movement. A poultry man enrolled his 50 Indian Games (Cornish) headed by an Indian Game cock in the campaign. He kept no other stock.

Pulaski County, Va., continues to retain first place among all counties in the country for the number of persons agreeing to use purebred sires only.

PONIES AMONG BETTER SIRES.

With the development of the "Better Sires—Better Stock" movement the interest of live stock owners in a great variety of domestic animals is increasingly apparent. Among the persons joining the better-sires movement in one day recently were two Massachusetts farmers whose stock was all pure bred and both of whom raised poinies. One is a breeder of Hackney ponies, Jersey cattle, Shropshire sheep, and four breeds of poultry. The other raised Shetland ponies, Aberdeen-Angus and Jersey cattle, Berkshire swine, and one breed of poultry—Light Brahmas. Altogether 298 head of stock were represented, of which 25 were ponies.

TEN BREEDS—ALL SIRES PUREBRED.

"We use no scrub sires." With this comment and a full statement of breeding stock kept, the superintendent of a large Virginia farm enrolled cattle, horses, swine, sheep, chickens, and turkeys in the "Better Sires—Better Stock" movement. Ten breeds of livestock are represented.

The stock includes a dairy herd of 58 Holstein cattle, a beef herd of 302 Herefords, 31 Percheron horses, 6 Standardbred horses, 1 jack, 78 Duroc swine, 204 Shropshire and Romney sheep, and nearly 200 chickens and turkeys. Of the female animals a large majority are grades, but all are being bred to purebred sires, as required by the conditions of the better-sires campaign.

POULTRYMEN ACTIVE IN IMPROVING STOCK.

The large number of well-bred flocks of poultry and the skillful methods used in improving them are becoming more and more evident with the development of the "Better sires—better stock" campaign. One Florida poultry farm, recently enrolled, has 200 cocks and 950 hens, all standard bred, single-comb White Leghorns. In addition, they are line bred for high egg production and the flock has been trap nested for 24 years. The owner states that in addition the fowls are of good exhibition type.

SCRUB OWNERS CHANGE METHODS.

A farmer, who owns one scrub cow, one grade mare, and a flock of 12 scrub hens, was one of a number in an Ohio county to enroll recently in the "Better Sires—Better Stock" movement. Hereafter he will breed his stock to purebred sires only. Numerous instances of this kind illustrate the results of the campaign which is aimed at the improvement of the average quality of live stock in the United States.

BETTER SIRES AT NAVAL ACADEMY DAIRY.

Commander T. de F. Harris of the Supply Corps, United States Navy, has enrolled the Naval Academy dairy at Annapolis, Md., in the United States Department of Agriculture "better sires—better stock" movement, which is aimed at raising the quality of domestic animals in the United States. The dairy herd includes 17 purebred bulls, 37 purebred cows, and 334 grade cows. Other stock is kept also, the sires being pure bred.

TO BUILD UP REINDEER HERDS IN ALASKA BY BETTER STOCK

An investigation of the condition of the reindeer in Alaska and the introduction of new blood into the herds, which are of great economic importance to the natives of the Territory, are to be undertaken by the Biological Survey, United States Department of Agriculture, in accord with recent legislation. The work will be carried on in cooperation with the Bureau of Education, Department of the Interior, which has been closely identified with the reindeer industry in Alaska since 1892. In that year the bureau introduced 143 animals, which have increased until they number to-day approximately 150,000. In addition, it is estimated that the natives have killed 100,000 for food and skins.

Excellent as have been the results so far, there are great opportunities for improving the industry, thus developing an important meat supply not only for Alaska but for other parts of the United States. A vast region, including the base of the Alaska peninsula and immense areas farther north, is adapted to raising these animals. Several million reindeer could be supported on these tracts, according to estimates. The introduction of new breeding stock will be one of the immediate tasks to be undertaken by the Federal authorities.

GETS PLACE AMONG PUREBREDS TO SHOW MERITS OF HER MATE

Mrs. Scrub Dairy Cow is about to break into the upper class of dairy society. Madam Scrub will parade with the blue-blooded aristocracy of the cattle world.

The United States Department of Agriculture expects to exhibit a grade family consisting of a purebred sire, a scrub cow, and the grade offspring of this mating at the National Dairy Show to be held at Chicago in October, 1920. Some of the cattle clubs will also have similar exhibits.

The purpose of this feature is to interest the owners of scrub and low-grade herds and to show in a practical way the manner in which such a herd may be improved by the use of a purebred sire. This will do much to combat the prevailing idea that the National Dairy Show is of interest only to the owners of pure-bred herds. It will help also to advertise the fact that the U. S. Department of Agriculture, through its "better sires" campaign, is offering cooperation and aid to the owner of poorest herd as well as to the owner of improved stock.

After all, Mrs. Scrub doesn't get into society on the strength of her own qualities; she is accepted purely on account of the merits of her mate and her progeny.

VIOLATORS OF LIVE-STOCK LAWS.

Uncle Sam penalized three railroad companies, according to a report of the Bureau of Animal Industry, in May, 1920, for violations of the live-stock quarantine laws. He also found judgments against 10 defendants for violations of the 28-hour law. One railroad company was found guilty of 62 breaches of this law and paid a fine of $6,000 with costs amounting to $125.83. The total amount of costs and fines assessed against all the violators, according to the figures of the Bureau of Animal Industry, amounted to $12,695.41.

Home Forest Pays Dividends Even If No Timber Is Sold—Supplies Farm Needs

A well-cared-for "home" forest will make the farm more prosperous, add to the comfort of the farm home, and enhance the value of the farm as an investment, says a new publication, "Forestry and the Farm Income," issued by the Forest Service, United States Department of Agriculture. Farm forestry properly practiced supplies timber for farm needs, enables the owner to market surplus timber profitably, furnishes employment for men and teams in winter, makes waste land yield a profit, and increases the sale value of the farm. Even if a farmer sells no timber, the woodland pays, says the bulletin. The time and money saved by having firewood, fence posts, and material for repair and construction conveniently at hand, and the protection afforded the crops, farm buildings, and stock are worth considerably more than the slight trouble and expense of raising and caring for the trees.

Need Not Occupy Productive Land.

Farm woodland need not occupy land that will grow other crops, it is pointed out. On the contrary, the trees should be located on ground too poor to cultivate. A little care given in the winter or at other times when the farm work is slack will make such land produce valuable timber. If fully stocked with trees and well cared for, an acre of hardwoods should grow from one-half to 1 cord of wood yearly, while pine should produce from 1 to 2 cords.

The prime essential for success in farm forestry, the bulletin states, is adequate protection against fires. Forest fires kill the little trees outright and weaken full-grown ones, so that they may become diseased or infested with insects. It also destroys the humus cover and causes depletion of the soil. Burning over the ground for the purpose of improving grazing is characterized as an expensive mistake. Although it is possible to secure green grass for the stock a week or two earlier in the spring by such a practice, many of the rich leguminous plants and annual grasses are killed, leaving only the hardy bunch, wiry, and other coarse perennial grasses.

Discretion in Cutting Necessary.

Grazing almost inevitably causes damage to the trees. Experiments have shown that if the best results are to be secured stock should be excluded from the woodland. When timber is needed, the cutting should be done so as to cause the least possible waste of valuable wood and should not damage other living trees. The first trees to be cut should be the dead or dying and deformed and diseased specimens, which shade out healthy trees. Less valuable kinds, such as gray birch, aspen, blackjack oak, dogwood, sow wood, blue birch, ironwood, and others, should be removed in preference to the more valuable kind. By following this practice the woodland is constantly improved and its value is increased.

Preservative treatment will considerably increase the life of timber which is used for fence posts and other similar uses, and is distinctly worth while. Treatment with coal-tar creosote has been found to be by far the most satisfactory process.

ATTRACTIVE CONTAINERS BRING BETTER PRICES FOR PRODUCTS

The desirability of packing farm products in clean, sound containers is again emphasized by the loss of $350 recently suffered by a producer in connection with a single shipment of butter, say specialists of the Bureau of Markets, United States Department of Agriculture.

This farmer shipped in barrels unsalted butter that scored 89 points. Because of the dark gray color of the barrels, which suggested packing stock butter, the receiver was unable to interest buyers in the commodity. Realizing that he would be unable to sell it at all in that condition, he salted and reworked the butter and then packed it in butter tubs. Although the butter had deteriorated in quality by this time, the appearance of the packages commanded the attention of buyers and the butter was promptly sold. The loss to the shipper was practically 8 cents a pound, or over $350 on the entire shipment—a loss that would have been avoided in the first place had the shipper packed the butter properly, and a loss that would have been greater had not the receiver done so.

The same principle applies to eggs, beans, or any other commodity, say the bureau's experts. If the packages present an inviting appearance, the sale is half made; for good-looking packages suggest contents of high quality.

Another illustration given by the Bureau of Markets is that of a country creamery that forwarded a 5-tub sample shipment of butter to a commission firm and received an offer for future shipments. In the next shipment the creamery used second-hand tubs instead of bright, new, clean, attractive packages, such as were used in the 5-tub sample. Although the butter shipped was uniform in quality and scored 92 points, the commission firm was unable to dispose of it as "extras," and the shipper was compelled to take a loss of 2 cents a pound on the shipment.

VINEGAR HELPS KEEP CANNED VEGETABLES FROM SPOILAGE

If it were not for the microscopic but ever-present bacteria, housewives would not have much trouble with canned products spoiling. As it is, however, if they are given half a chance, bacteria will soon make a jar of fruit or vegetables ready for the garbage bucket.

It may not always be possible to kill all bacteria in home canning, for some of those germs can endure a high degree of heat for a long time. Nevertheless, jars and cans must be processed long enough to kill as many bacteria as possible.

In the case of fruit or tomatoes, even though many of the bacteria survive the short heating process, few or none will grow because of the acid present. Heavy sirup added to the fruit also prevents the growth of bacteria. For this reason fruit requires a much shorter time of processing than vegetables, with the exception of tomatoes.

During the past year the Home Experimental Kitchen of the United States Department of Agriculture has been experimenting with the addition of a small amount of acid—vinegar—to nonacid vegetables being canned. This work is being continued, and the results thus far indicate that 1 to 4 tablespoons of vinegar added to a quart jar help greatly in reducing the amount of spoilage. When the vinegar is added the time of processing can be reduced. For instance, it is found that corn, which ordinarily is difficult to can successfully, keeps well when 4 tablespoons of vinegar are added to a quart jar processed three hours continuously. String beans, old peas, and spinach are other vegetables successfully canned by this method.

The addition of vinegar to canned vegetables in the amounts mentioned modifies to some degree the natural flavor of the vegetable, but the result is not objectionable to most people, and in many instances is not noticed.

Good Warehouse Receipts Enable Cotton Farmers to Get Better Prices for Crop

Ability to carry his cotton and market it as it is needed by the mills spells the financial independence of a cotton farmer, say specialists of the Bureau of Markets, United States Department of Agriculture.

Therefore an important function of cotton warehouses is to provide the farmer with suitable collateral for securing loans. To this end every precaution should be taken to safeguard the integrity of the receipt given for cotton stored, in order that the certificate may command the highest loan value at the lowest possible rate of interest.

The receipt should show, among other things, whether the warehouseman is licensed under the State or Federal Government; whether the warehouseman issuing it is under bond to the State or Federal Government for the faithful performance of his obligations as a warehouseman, and the amount of such bond; it should contain a description of the cotton, showing the numbers or other means of identification of the bales, and the grade and staple of the cotton; it should contain a statement of the amount of liability for which the warehouseman claims a lien on the cotton; it should show that the warehouseman issuing it is operating his warehouse subject to the examination and under the supervision of disinterested governmental authority, such authority to see to it that proper records are kept by the warehouseman to enable the holder of a receipt to identify, locate, and secure individual bales covered by his receipt whenever he may desire to do so.

Should Be As Good As Cash.

Such a receipt should be negotiable readily without reference to the financial or moral responsibility of the individual who may happen to hold it. At present, it frequently happens that a warehouse receipt for cotton is worth no more than the personal responsibility of the holder. As most of the cotton is grown and marketed by men of limited means, it is of the utmost importance to every producer of cotton, no matter what his individual financial standing, that he be able to store his cotton in a warehouse and get a receipt for it, which he can readily turn into cash in order to finance the holding of his cotton.

The machinery for the issuance of receipts of this character exists in the United States Warehouse Act, which makes provision for all the features mentioned. This act, administered by the Bureau of Markets, makes possible a uniform system of warehouses throughout the Cotton Belt. Under this system a receipt issued by a licensed warehouse in one State is uniform with the receipts issued by licensed warehouses in other States.

Regulations Not Onerous.

The act is entirely permissive and is in no sense compulsory. Warehousemen are licensed only upon their application and upon their conforming with the law and the regulations thereunder. The regulations are by no means onerous, and provide for only such businesslike practices as any well-informed, up-to-date warehouseman should follow. The cost of membership, aside from the cost of the bond, is nominal and the cost of the bond is not great. On account of the added feeling of security that is attached to warehouses operating under the act, various insurance underwriters' associations have granted reductions of from 10 to 25 per cent in insurance rates on cotton stored in warehouses, licensed under the act. This reduction in insurance premiums in some cases has been more than sufficient to pay for the premiums on the bonds.

There is no conflict whatever between the United States warehouse act and State warehouse laws. In fact, one section of the act states specifically that there shall be no conflict and provides for cooperation between Federal and State officials. In several of the States definite cooperative regulations advantageous to all have been established by the Federal Government and the State officials who administer the State warehouse laws. It is the purpose of the Bureau of Markets to make the Federal act serve in the highest way possible the interests of farmers who desire to store their cotton in warehouses which issue receipts of the greatest value to them from a financial standpoint, and it believes that this purpose can best be accomplished through cooperation.

COLD-STORAGE SPACE FOR BUTTER.

The Bureau of Markets, United States Department of Agriculture, has just completed a survey of the space available for the storage of butter in the cold storages throughout the United States for the present season.

Reports have been received from approximately 160 warehouses. They show that during the month of June they had space available for the carrying of 141,700,000 pounds, and that during July they expected to have additional space sufficient to store 49,700,000 pounds. Of this amount, space sufficient for the storage of 15,800,000 pounds had been contracted for before June 15.

During the month of June, in 1919, these same warehouses increased their holdings by 45,500,000 pounds and during July by 27,000,000 pounds, and their total holdings on August 1 were 95,200,000 pounds. The total holdings reported from all warehouses on September 1, 1919, amounted to a little more than 131,000,000 and the holdings of that date were the largest on record.

As 160 warehouses have sufficient space this year for the storage of more than 190,000,000 pounds, there will evidently be quite a surplus of space.

Should Seek Foreign Markets for America's Surplus Products

To insure the prosperity of the American farmer and of the Nation an uninterrupted stream of produce should flow to foreign markets, according to the opinion of the Bureau of Markets, United States Department of Agriculture. Every American farmer must have foreign produce, such as coffee, tea, sugar, cloth, and manufactured articles. To secure them America must have something to give in exchange.

In emphasizing the importance of a foreign outlet for surplus products attention is called to a condition that has recently developed. During the war a large European demand for American condensed milk was created. But now that Europe can produce its own product there has been a serious falling off in the demand for American condensed milk. As a result many American condenseries have been closed within the past six months. Of course, the surplus of fluid milk is being manufactured into butter and cheese, but these commodities are worth only about two-thirds as much as Europe paid for the condensed milk.

With established machinery for the manufacture, another outlet for American condensed milk should be developed. The tropical countries that have been furnishing us sugar from this and other countries need condensed milk, and doubtless would be glad to negotiate with American producers.

American producers of all products should keep thoroughly informed regarding foreign market conditions and opportunities. The Bureau of Markets maintains a foreign markets service, and is ready at all times to advise with producers' organizations interested.

MARKETING OF SOUTHERN CORN REQUIRES CONCERTED ACTION

(*Continued from page 1.*)

the Southeast is for white corn, the various grades of this class usually commanding from 5 to 20 cents premium over similar grades of other classes. The Federal grades specify that corn to class as white must contain 98 per cent, by weight, of white kernels. Unfortunately, a very large percentage of the corn raised in the Southeast contains a considerable percentage of black, blue, red, and yellow kernels.

Two things should be done to improve the color of corn grown in the Southeast. Farmers should select and plant more white seed of varieties suited to this section; second, concerted action should be taken against various pests and bad practices in handling. Corn containing weevils or other injurious insects is placed in what is known as one of the "sample grades," which means that the only safe way to trade in it is by actually examining the corn or a representative sample. This necessarily narrows the market and places the grower at a disadvantage.

Avoid Too Much Foreign Matter.

Damaged grains also are often the result of weevils, earworms, or similar pests. Corn should not be left standing long in the field after it is ripe nor stored in poorly constructed cribs, where it will be exposed to the weather. If corn raised in the cotton belt is not marketed too soon after harvest, there will be little trouble from excessive moisture—one of the factors in grading corn—except in that grown in mountainous parts of the Carolinas, Georgia, Tennessee, and certain places along the coast.

Another essential in preparing corn for the market is to avoid an excess of foreign material and cracked corn. This can be done by screening with a machine equipped with proper fans and screens. If corn is sold for grinding, the mills usually want it in bulk, and some expense can be saved by shipping in that manner, although the largest demand in the South is for corn in bags.

Establish Central Marketing Agencies.

If possible, arrangement should be made to have some agency in each locality where there is a surplus of corn to purchase the crop when it is ready for delivery to the local market. This agency may be either a cooperative association, a local grain merchant, general merchant, oil mill, compress, cotton mill, or some responsible individual. The crop can nearly always be marketed more satisfactorily and at better prices by some such organization than by the individual growers.

County agents, farmers, or others desiring information relating to marketing or grading of corn are invited to communicate with the Bureau of Markets, United States Department of Agriculture, Washington, D. C. Additional information about corn grading can also be obtained from men in charge of the department's exhibits displayed at various cities or by visiting any office of Federal Grain Supervision or an inspector licensed by the Secretary. In the Southeast the offices of Federal Grain Supervision are located in Baltimore, Md., Atlanta, Ga., Nashville, Tenn., New Orleans, La., Memphis, Tenn., Cairo, Ill., Louisville, Ky., and Cincinnati, Ohio.

HOW TO FIND THE CAPACITY OF A CORN CRIB IN BUSHELS

Do you know how much corn is left in your crib, or how many bushels a given space will contain? If you know the rules for estimating quantities of stored grain, the problem is simple.

In estimating the number of bushels of corn in a crib, find the number of cubic feet in the pile of ear corn and divide this product by $2\frac{1}{4}$. The result thus obtained represents the number of bushels of shelled corn in the pile of ears and is a fair approximation for well-settled ear corn of good quality. However, if the corn is of poor quality a higher factor should be used, say $2\frac{3}{8}$ or $2\frac{1}{2}$.

A standard bushel contains 2,150.42 cubic inches, or nearly $1\frac{1}{4}$ cubic feet. This is a bushel, by measure, of shelled corn or of other grain. A bushel of corn on the ear varies widely in volume and may occupy more or considerably less than twice the space occupied by a bushel of shelled corn. On the average, $2\frac{1}{4}$ cubic feet of good, sound ear corn will make a bushel of shelled corn.

If the crib is wider at the top than at the bottom, find the average width by adding together the width at the bottom and at the top of the corn and dividing by 2. Then multiply this average width by the height and length to find the cubic contents, and divide by $2\frac{1}{4}$ to find the number of bushels of corn in the crib.

The cubic contents of a round crib are found by multiplying together the area of the base and the height of the crib. The area of the base is found by the formula used for finding the area of a circle; that is, by multiplying the diameter by itself, and this product by 0.7854. Then multiply by the height. Divide by $2\frac{1}{4}$ as before, and you have the number of bushels of shelled corn.

In buying or selling ear corn by weight, which is the general practice, it is customary to allow 70 pounds of air-dried ear corn to the bushel. This quantity of ear corn will give about 56 pounds of shelled corn (or an even bushel, or 2,150.42 cubic inches) and 14 pounds of cobs. There is some variation from this figure due to difference in percentage of grain to cob and to the weight of a measured bushel of shelled corn.

To estimate the number of bushels in a bin of shelled corn, multiply together the length, breadth, and height in feet of the pile of corn, and divide by $1\frac{1}{4}$. If the dimensions are in inches, multiply together the length, breadth, and height in inches and divide by 2,150. This same rule can be used for measuring or estimating the number of bushels of other grain, as wheat, rye, oats, etc. The contents of a round or cylindrical bin is found by multiplying the area of the base by the height, as directed for finding the contents of a round crib. The cubic feet of shelled corn are then converted into bushels by dividing by $1\frac{1}{4}$.

RICE EXPORTS TO JAPAN SHOW INCREASE FOR FIRST QUARTER

The United States exported more than 300,000 pounds of rice to Japan during the first three months of this year, according to figures of the Bureau of Markets, United States Department of Agriculture. In contrast, less than a thousand pounds of this commodity were exported to Japan during the entire year of 1919.

The average rice exports of the United States to all countries during the period 1910–1914 were less than 20,000,000 pounds a year. To-day the exports range from 30,000,000 to 60,000,000 pounds a month.

This enormous export business has been made possible by the development of the rice industry in California based upon experiments made by Department of Agriculture scientists in growing rice in communities where it was said to be impossible to grow this commodity. The first commercial field of rice in California was planted in the Sacramento Valley in 1912. There are now a dozen rice mills in operation in the Golden State, which handled $21,000,000 worth of rice last year.

There is an almost unlimited opportunity for future development of this industry in the United States, say the department's specialists. The rice growers are most enthusiastic over the outlook, and declare that they are going "to teach the American people that rice is one of the finest foods in the world."

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URGED TO LEARN METHODS OF DETERMINING WHEAT DOCKAGE

Important to Wheat-Growing Farmers in Grading under Federal Standards.

Dockage Is First Removed from the Sample and the Grade Determined with the Clean or Dockage-Free Wheat—Description of Dockage Test.

Of prime importance to the wheat-growing farmer is an understanding of dockage as the term is used in Federal wheat grades, and how dockage in wheat is determined, since in grading wheat under Federal standards one of the fundamental principles is to determine the numerical grade on a dockage-free basis. With a few exceptions the dockage is first removed from the sample and the grade determined with the clean or dockage-free wheat. Dockage is the foreign material screened from a sample of wheat to be graded, by the use of appropriate hand sieves or other cleaning devices, and consists of sand, dirt, weed seeds, weed stems, chaff, straw, grain other than wheat, and any other foreign material. It also may contain finely broken or small, shriveled grains of wheat, in cases where such material can not be separated from dirt and other foreign material by the use of appropriate sieves.

Foreign Material Determined.

The purpose of the dockage provision in the Federal wheat standards is to enable the person grading the sample to determine the approximate amount of easily separated foreign material that is in the lot of wheat. Therefore, dockage is approximately the percentage of foreign material which can be easily removed from the lot of wheat by the commercial types of cleaning machinery commonly found in grain elevators and mills.

The dockage test is described in Farmers' Bulletin 1118 entitled "Dockage under Federal Wheat Grades," which has recently been issued by the United States Department of Agriculture to aid wheat growers and others in understanding this important feature of wheat grading as provided in the revised Federal grain standards for wheat, which became effective July 15, 1918.

Dockage Test Described.

The dockage test is made ordinarily by weighing 1,000 grams of wheat (about 2¼ pounds), which constitutes a representative sample. Grams are used instead of other units for ease in determining percentages.

The dockage is separated from this 1,000-gram sample by screening with pan sieves of specified types or by using a cleaning device which has been officially approved. The dockage so separated is weighed and the percentage is found, based on the total weight of the sample including the dockage. If the amount of dockage is below 1 per cent, it is disregarded. For example, if only one-half of 1 per cent of foreign material is sepa-

(Continued on page 8.)

DOCKAGE MAXIMS.

The percentage of dockage is an essential factor in arriving at the true value of a lot of wheat. This dockage may consist of either useful or harmful foreign materials.

The various methods of handling dockage should be carefully investigated and the one that is best suited to the needs of the local conditions should be adopted.

When a large percentage of dockage is present in wheat it is advisable to remove it on the farm or at the point of shipment and thus avoid paying the freight for the dirt, chaff, weed seeds, etc., on the basis of the rate for wheat.

The farmer gets a higher numerical grade for his wheat under the dockage system of the Federal grades than he would under a system of grading that does not require a determination for dockage but lowers the grade on account of the total foreign material present in the wheat marketed at country points.

The dockage system in operation protects the farmer from the possibility of low prices fixed by the local buyer in order to insure a safe purchase on a flat-rate basis.

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PRESENT NEWSPRINT SHORTAGE CAUSED BY FOREST DEPLETION

Overdevelopment of Pulp Industries in Northeastern and Lake States.

United States Now Dependent upon Foreign Sources for Two-thirds of Its Newsprint or Raw Material—Forest Service Makes Full Report.

The fundamental cause for the present shortage of newsprint paper is the serious depletion of the forests of the Northeastern and the Lake States, where there is an overdevelopment of the pulp and paper industries, according to a report to the Senate by the Forest Service, United States Department of Agriculture, in response to a request for information on timber depletion, prices, exports, and ownership. The report, which has recently been made public, is one of the most comprehensive ever prepared dealing with the lumber resources of the Nation.

Since the requirements of paper making restrict the kinds of wood that can be advantageously used in making newsprint, four species—spruce, hemlock, balsam, and poplar—supplied 84 per cent of the total amount manufactured in 1917, according to the report. The occurrence of these species chiefly in the Lake States and New England has led to the over-centralization of the paper-making industry there, it is stated.

Paying Penalty for Depletion.

Until recently, when abnormal demands, short supplies, and resulting high prices led to increased newsprint production through the utilization of plants designed for and formerly used in making other kinds of paper, there has been no expansion in the newsprint industry in the United States since 1909, and we have had to import large quantities of pulp wood and paper, the report points out. The demand, however, has greatly increased, and because of excessive depletion of our own resources this country now is dependent upon foreign

sources for two-thirds of its newsprint or its raw material.

Even with the imports the supply has been far short of the needs of the newspapers of the country in the past two years. The contract price has increased more than 200 per cent while spot market prices are 500 per cent more than in 1915. "Prior to the war," says the report, "the larger newspapers secured all, or practically all, of their supplies under contract, and a relatively small percentage of the total newsprint consumption was handled on a spot-market basis. During the last year the larger papers have found it increasingly difficult to secure all of their supplies under contract, and have been forced to secure the remainder in the open market. It is in the open market that the full effect of competition for inadequate supplies is shown, and this is reflected in the much higher prices.

Small Papers Suffer Most.

"Unfortunately it is upon the spot market that the smaller newspapers, least able to increase returns by increasing advertising and raising their rates, must depend." The result has been that many of these small papers have been forced to curtail their issues and have had the greatest difficulty in securing enough newsprint to continue publication.

It has been possible for the lumber industry to move to more remote timber lands as forests have been cut away, but the heavy investment required for paper plants have made it impossible for the paper industry to do this. The result is that existing mills are finding it necessary to secure their supplies of wood from increasing distances. Spruce from Minnesota and Canada, for example, is being hauled from 700 to 1,200 miles to paper mills in Wisconsin.

The timber is going fast, the report says. It is reported that in New York, where nearly 50 per cent of our newsprint is produced, 60 per cent of the pulp and paper mills have absolutely no timber supplies of their own. For these mills there seems to be no other prospect than to close down in a comparatively few years. In New Hampshire the coniferous pulp wood has been cut heavily, and 10 or 12 years will see the end of the supply. Aside from the State preserve in New York, in which no cutting is allowed, the bulk of the coniferous pulp wood in the East is located in Maine. One company there has enough timber for 40 to 60 years cut. Others are estimated to have enough to last 15 to 20 years, but there are about 15 companies which have no lands of their own and which will have difficulty in purchasing material within 10 years.

In general, the pulp and paper mills of the Northeast are becoming more and more dependent upon Canadian wood. Such dependence, the report points out, is extremely dangerous. All exports of pulp wood are prohibited from Newfoundland. The Canadian Provinces have prohibited the export of pulp wood from crown lands, which form a very considerable part of the timberlands in eastern and western Canada.

On the whole, the situation of the newsprint industry in the eastern United States is very unfavorable and there is little chance of its becoming better, the report states. The only things that can assure production of even approximate domestic requirements are concerted effort to increase the production of pulp woods in the Northeast and the development of the newsprint industry in the West and in Alaska.

Alaska Offers Relief.

The timber on the Tongass National Forest in Alaska is said by the report to be of particular importance in connection with the newsprint situation. It is estimated that there are about 70 billion board-feet of Sitka spruce and western hemlock well suited for paper making. The timber is located in a comparatively narrow belt along 12,000 miles or more of coastline. Water power is available, as is also deep-water transportation from numerous mill sites.

"It is estimated that the cut from this region alone will insure a perpetual supply large enough to meet one-half of the present newsprint requirements of the United States. Alaska is one of the centers to which the newsprint industry of the United States should look for a large future development. The same is true of other centers in the West, where immense resources of pulp wood supply are now almost wholly undeveloped. Much of this timber is in the national forests."

To bring about promptly the development of the pulp and paper industry in new regions of abundant timber supplies, the report recommends a comprehensive survey to furnish exact information upon the stand and location of suitable timber and other needed data.

Oats rank next to corn and wheat in crop acreage and value in the United States. But, notwithstanding this, less attention has been given to the production of oats than to any other important grain, so that yields often have been unsatisfactory and the crop sometimes unprofitable, say specialists of the United States Department of Agriculture.

Learn to Recognize the Whorled Milkweed—Poisonous to Cattle, Horses, and Sheep

Stockmen should learn to recognize and avoid the whorled milkweed. It is a plant very poisonous to cattle, horses, and sheep, which grows abundantly in certain sections of southwestern Colorado, southern Utah, and the northern counties of Arizona and New Mexico, according to the United States Department of Agriculture, which has made an investigation of the effects of this plant on stock. Herds should not be given the opportunity to eat any considerable quantity of this plant. It is especially dangerous to trail sheep over a whorled milkweed area, or to bed them down in the immediate neighborhood.

Is a Foothill Plant.

The whorled milkweed is a foothill plant, not being found above an altitude of 7,500 feet, and sometimes grows with great luxuriance about ditches and in abandoned fields. As small a quantity as 2½ ounces of the green plant will kill a sheep and 2½ pounds may kill a 2-year-old steer. Horses are not likely to eat it, but if they do they are as easily poisoned as sheep.

Frequent cases of poisoning occur when animals are confined to areas where the plant grows and have little else to eat, and under such circumstances heavy losses result. Many animals also have been killed by eating hay containing the plant dried. If they have consumed a sufficient quantity to be affected, they usually die. No remedy that will prevent death in such cases has been found.

Difficult to Eradicate.

The whorled milkweed is exceedingly difficult to eradicate, but by cutting it down before the heads are formed much can be accomplished in pastures and along trails. Ordinarily it stands from 1 to 3 feet in height.

Persons interested in securing more information regarding this menace to live stock and illustrations by which it can be easily identified should write the United States Department of Agriculture, Washington, D. C., for a department bulletin entitled, "The Whorled Milkweed."

STEADY PROGRESS REPORTED IN BETTER-SIRES MOVEMENT

More Than 2,000 Farmers List 232,000 Animals in Nation-Wide Campaign.

Figures Show a Steady Decline in the Percentage of Scrub Female Stock on Farms Where Purebreds are Used—Summary of Progress Made Thus Far.

With 232,322 head of domestic animals and poultry listed in the better-sires movement, live-stock owners of the country show noticeable activity in banishing scrub sires and also scrub female stock. Within the last three months more than 1,000 persons notified their State agricultural colleges and the United States Department of Agriculture that henceforth they would breed their domestic animals only to purebred sires. This is in accordance with the nation-wide compaign to increase efficiency in production.

According to quarterly tabulations made by the Department of Agriculture, there has been a steady decline in the percentage of scrub female stock kept on farms where purebred sires are used, the present figure being only 2.3 per cent. By contrast, the percentages of better bred females on farms using purebred sires are: Purebreds, 47.8; grades, 40.2; and crossbreds, 9.7.

A Summary of Progress.

Outstanding facts in the progress of the better-sires movement on July 1 were as follows: Live-stock owners participating 2,078; highest State enrollment, Virginia, 802; highest county enrollment, Pulaski County, Va., 400; States cooperating with the department, 46. The campaign has been in progress nine months.

The following breeding stock has been listed in the campaign. "Listing" means that all males are purebred and that females are bred only to purebred males:

Cattle	42,941
Horses	4,078
Asses	155
Swine	15,692
Sheep	41,424
Goats	2,266
Fowls	120,145
Other poultry	5,621
Total	232,322

To meet the demand for facts and figures on benefits following the use of better sires, the department has prepared a collection of 50 short items. This information, which includes results of experimental tests and other observa-

tiay be had by requesting it from theau of Animal Industry.

igh as organized the better-sires mot is directed by the United SDepartment of Agriculture in coopa with extension divisions of the vaagricultural colleges, it is receiving ve support also from breeders' asons, the farm press, business organs, and individuals. A Middle Wurm paper urges that 2,000,000 could be disposed of by dairymen ofUnited States because the poor cotail loss in production. It is pc out that inferior cows are inca of returning a profit, no matter hcd the market prices may be. The di of such cattle, it is believed, wpe quickly followed by their replnt with dairy cows of improved bg.

Interest in Hawaii.

better-sires movement is more than art to bring about the use of purebres, since it provides that the meeding animals possess high indiviuality as well as being purebred. Tadth of interest in these activities isn in a letter received by the depat from the agricultural editor of a inent Hawaiian newspaper. Refeto better-sires activities in continUnited States he points out the nr improved stock in Hawaii and rs suitable information and illustr "to get our farmers really interes better stock."

To enable county agents and others who address farmers' gatherings to discuss live stock improvement effectively the department is distributing a typical 20-minute address entitled "A plan to make the country scrub-free." The address is one recently delivered by a representative of the Bureau of Animal Industry at a farmers' meeting in Virginia. The numerous anecdotes, illustrations of incidents in county-agent work, and practical breeding suggestions make the remarks especially adapted for communities desiring to improve live stock but which have thus far taken no definite action. Copies of the address may be obtained from the Bureau of Animal Industry.

KILLS SCRUB PUREBRED.

"Scrub purebred sires as well as common scrubs should be eliminated."

Acting on this policy of the United States Department of Agriculture in connection with the better-sires movement, a poultry breeder recently killed a cockerel of pure breeding. The bird was poorly shaped and had faulty feet.

In reporting the incident to the department the poultryman, who lives in Yates County, N. Y., enrolled his flock of more than 250 fowls in the "Better-Sires—Better-Stock" Campaign. The movement, which is nation wide, is aimed at improving the quality of livestock through a wider use of good purebred sires in all classes of farm animals.

SUMMARY OF "BETTER SIRES—BETTER STOCK" CAMPAIGN, JULY 1, 1920.

Animals and poultry enrolled Oct. 1, 1919, to June 30, 1920.

Kind.		Males (all purebred).	Females. Purebred.	Grade.	Crossbred.	Scrub.	Total females.	Total males and females.
Ca	per cent		34.3	54.4	7.2	4.1	100.0	
	number	2,153	14,008	22,179	2,919	1,682	40,788	42,941
H	per cent		12.7	72.2	9.4	5.7	100.0	
	number	227	489	2,780	360	222	3,851	4,078
A	per cent		50.9	40.0	6.4	2.7	100.0	
	number	45	56	44	7	3	110	155
Sv	per cent		60.9	29.6	7.4	2.1	100.0	
	number	1,260	8,795	4,278	1,052	307	14,432	15,692
Sl	per cent		15.6	56.4	26.6	1.4	100.0	
	number	1,090	6,228	22,750	10,733	553	40,334	41,424
G	per cent		11.9	67.4	15.8	4.9	100.0	
	number	82	259	1,473	345	107	2,184	2,266
al animals	per cent		29.4	52.6	15.2	2.8	100.0	
	number	4,857	29,905	53,504	15,416	2,874	101,699	106,556
F	per cent		63.5	29.5	5.2	1.8	100.0	
	number	5,148	72,981	33,914	6,010	2,092	114,997	120,145
Oultry	per cent		61.2	32.9	4.1	1.8	100.0	
	number	588	3,080	1,656	206	91	5,033	5,621
al poultry	per cent		63.4	29.6	5.2	1.8	100.0	
	number	5,736	76,061	35,570	6,216	2,183	120,030	125,766
al animals and oultry	per cent		47.8	40.2	9.7	2.3	100.0	
	number	10,593	105,966	89,074	21,632	5,057	221,729	232,322

number of persons enrolled, 2,078.
est State enrollment, Virginia, 802.
est county enrollment, Pulaski County, Va., 400.

Weekly News Letter

Published every Wednesday by the
UNITED STATES DEPARTMENT OF AGRICULTURE
DIVISION OF PUBLICATIONS
Edwy B. Reid, Chief

OFFICE OF INFORMATION
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

"LOOK OUT FOR CHINCH BUGS" WARNING FROM MIDDLE WEST

Warning messages from Missouri, Indiana, and Illinois state that the chinch bug is appearing locally in the southern portions of these States and somewhat farther north in Indiana. The spring flight of the bug continued over a longer period than usual, and for that reason the infestation has been extended to larger areas. The Bureau of Entomology, United States Department of Agriculture, apprehends severe injury to the corn crops later on unless steps are taken to check the infestation, and is assisting to the extent of its ability toward putting control measures into effect.

The Bureau of Entomology offers the following information: The chinch bugs spend the winter in clumps of bunch grass and under dead leaves and rubbish. In the spring they emerge and fly to fields of young wheat, where they lay their eggs on the root tops and stems. When the wheat commences to ripen and dry, the young bugs leave the wheat fields in armies and walk—for most of them can not yet fly—to the corn fields, where they do the greatest damage.

The fact that they make the migration from the wheat to the corn by walking gives the farmer his opportunity to check the invasion by pouring road oil along the bottom of a shallow furrow dug across the line of march. Deep holes should be dug every 25 feet along the furrow on the side nearest the wheat to trap the bugs.

Corn already infested may be sprayed with kerosene emulsion along the first rows to prevent the bugs from going farther. Some corn will be injured by the spray, but the balance will be safe the bug.

As a preventive measure, bur trash and dried grasses, especially as grow in clumps like "broom s during early winter or early s Roadsides and pastures should r most thorough treatment of this acter.

SECRETARY MEREDITH APPRO WOOL-WAREHOUSE REGULAT

Regulations for wool warehouses u the United States warehouse act, rec approved by the Secretary of Agricul are now ready for distribution b United States Department of Ag ture.

The act, which is not mandatory, enacted with a view to bringing a the uniformity of warehouse receipts making them of the highest colla value. Such receipts, readily nego and generally acceptable as securit loans on wool, will be of definite sistance in financing. They will b sued by warehouses storing wool will become licensed by and bonde the Government under the act.

Because the act is entirely perm in its nature, warehousemen will b censed only upon their application t Secretary of Agriculture.

By becoming members of the Fe warehousing system, warehouses ac a better standing, are more highl garded by bankers and depositors, the added confidence so created serv attract additional business of the substantial and desirable kind. benefits of coming into the system numerous.

Parties interested in becoming lic and in obtaining the advantages secured thereby should address inq to the Chief of the Bureau of Ma Department of Agriculture, Washin D. C.

MORE VIOLATORS FALL AFOUL OF PURE FOOD AND DRUGS

Fifty manufacturers and dealers discovered that the food and drugs enforced by the United States De ment of Agriculture, is an exceed live regulation. Among the 51 branded or adulterated articles a many varieties of products not ordin thought of as coming under the jur tion of the act.

Corned beef cases, so marked as t dicate that the contents complied the requirements of the United S Navy, when they did not; eye salve consisted principally of zinc ointment; egg noodles in a package marked "8 ounces" in large letters, and "6 ounces" in small, indistinct characters, and which product proved to contain very little egg at all; canned salmon that was really putrid and decomposed; gelatin, so marked, which the chemists found to contain glue and other added and poisonous materials; and rice-bran heavily adulterated with rice hulls instead of bran, are among the items mentioned in the announcement. Butter, capsicum, aspirin tablets, santal-oil capsules, cordial, cottonseed meal, eggs, fish, flour, peppers, spring water—these and many others indicate the extensive nature of the work carried on by the Government in protecting the public health.

CROP CONDITIONS PROMISE MORE SUGAR FOR NEXT FALL

People who have soft-pedaled the sugar bowl for six years may be interested in the statement that crop conditions on July 1 promised an increase in next fall's sugar production in the United States; an increase amounting to, approximately, 333,000 tons, or enough to load a train of freight cars 70 or 75 miles long, allowing 40 tons per car. This prospective crop is equal to more than 22 pounds of sugar for every man, woman, and child within the United States, and the increase over last year equals more than six pounds per person. The sugar-beet crop this year covers almost a million acres as against the 5-year average of about two-thirds of a million; and the growing condition on July 1 was above the 10-year average. There is more than half a million acres of sugar cane this year, about half of which is intended for sugar and the other half for sirup, after deducting considerable amounts for planting the next crop. There is a substantial increase in acreage over last year, especially in Louisiana, where nearly all the cane sugar of the United States is made. The growing condition of the cane in Louisiana is much better than last year but considerably under the average for the past nine years. The Department of Agriculture, which has carried on a number of projects looking toward making this country self-sustaining from a sugar standpoint, is cooperating with other agencies in protecting the crops from insects and disease and otherwise promoting the production and utilization of a bumper sugar crop. It should be borne in mind, however, that the forecast for 1920 is based upon conditions on July 1, and the actual outturn would be above or below this forecast according as condition between July 1 and harvest are better or worse than average.

Cutting Corn with Machinery Saves Time—Means More Money in the Farmer's Pocket

Cutting corn with machinery does not reduce materially the cost of cutting. It does, however, enable the farmer to cut a given acreage much more quickly, and, in that way, often proves profitable. The proper time for cutting corn in order to preserve its full feeding value is so short and other work is usually so pressing that the saving of time often means a great deal more in the farmer's pocket than could any actual saving in wages and other cutting costs. This is the view taken of corn-harvesting machinery by the United States Department of Agriculture, as expressed in Farmers' Bulletin 992, The Use of Machinery in Cutting Corn. The saving is greater in cutting corn for silage than for fodder, the bulletin continues.

The two types of corn-harvesting machinery, the corn binder and the platform harvester, are discussed in detail. Under normal conditions, it is stated, the binder drawn by three horses will cut about 7 acres in a 10-hour day. One man will be required to operate the machine and two to shock the corn. These three men working with corn knives would probably be able to cut about 4 acres in a 10-hour day. The binder, therefore, does nearly twice as much work as the three men could do without it.

Objections to Binder.

There are, however, limitations and objections to the use of the binder. If the corn is badly blown down, the binder may not be able to handle it and may have to stand idle through a season. The binder necessarily knocks off some of the ears, and it may be necessary to send a man over the field to pick up the ears by hand. Men at first find it harder to handle the bundles from a binder than to handle loose stalks. Some binders drop the bundles so nearly behind the machine that the horses have to walk over them on the next round, and thus considerable damage is done to the corn. However, the specialists say, these objections can be minimized even where they can not be completely obviated.

In order to make the use of the binder worth while, the reduction in labor and the saving due to getting the work done at the proper time must more than pay for the use of the machine, the twine, and the labor of the horses.

The saving is greater when cutting for silage, for several reasons. The binder saves the labor of at least two men in cutting. Often the saving in time due to having the stalks in bundles instead of loose will enable the operator further to reduce the size of the crew. If only a small amount of silage is to be put up, a binder would not be a paying operation unless there were a large quantity of other corn to cut. The cooperative use of both binder and cutter is discussed and is recommended where the only corn cut is that for silage. Cooperative ownership and use of the binder is said to be frequently advantageous for small farmers. The use of the corn elevator in connection with the binder is discussed and both the advantages and disadvantages pointed out.

Platform Harvester Cheaper.

The platform harvester, while a cruder machine than the binder, is much less expensive to purchase, requires only one horse instead of three or four, and two men instead of three. Its day's work is about 4 or 5 acres. Generally, the equivalent of the labor of one man is saved every day the platform harvester is used. The work is harder with the platform harvester than with the binder. But the platform harvester can be used profitably on smaller farms than can a binder and it can stand idle a greater part of the time or wear out sooner than a binder and still be a profitable investment. In cutting corn for silage, the platform harvester will not save as much labor as a binder.

Copies of the bulletin may be had free on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WOODLANDS YIELD DIVIDEND TO OWNERS FOR PROPER CARE

It is a mistake to saw up choice logs of white oak, ash, cherry, and yellow poplar for rough uses at home or to use clear black walnut for gate boards or split up white oak butts for fence posts. This fact is emphasized in many ways in a new publication, Forestry and the Farm Income, issued by the Forest Service, United States Department of Agriculture. Farmers are told that many valuable logs go into crossties when they would bring the owner much more if sold as saw logs. Likewise, large numbers of rapid growing trees are cut which produce only one small tie, whereas if left to grow for from three to five years they would yield more than double the profit. To avoid making such mistakes owners of farm woodland should familiarize themselves with the uses for which each kind of timber is best adapted.

Timber that is cut in the late spring and summer months should be handled with special care to avoid injury, because freshly cut wood is then more likely to be attacked by insects and fungi than during the colder months. Seasoning proceeds more rapidly during the warmer season and may cause excessive checking, which is not beneficial to the timber. If rightly handled, posts, poles, and logs may be cut at any season without their durability being affected. In no case should wood be allowed to lie in direct contact with the ground. The opportunity for insect attack and decay can be reduced to a minimum by peeling the timbers and open piling them off the ground in a shaded but dry place. This, however, does not retard checking of the wood.

Logs are sometimes stored under water in the hot season to prevent blue stain, checking, insect attack, and decay. Painting the ends of logs with a yellow ochre or barn paint will very materially retard injury by end checking. Painting peeled timbers with creosote will prevent sap stain and decay.

PUBLICATION LIST FOR MAY OFFERS INTERESTING VARIETY

A variety of publications of more than usual interest and range of subject matter was added during May to the list of publications of the United States Department of Agriculture available for public distribution. The circular for that month describing the new publications may be had upon request.

Many of the new bulletins are for free distribution. The more technical and scientific publications, which have a limited interest and distribution, may be had free upon request as long as the supply lasts. After that a nominal price is charged for them.

Among the farmers' bulletins for free distribution is one that should be of very general interest—Selecting a Farm. Others include: Carpet Grass, Cooperative Marketing of Woodland Products, The Stable Fly, Rabbit Raising, and The Alfalfa Caterpillar. Among the departmental bulletins for the month are found papers on the western grass-stem sawfly, chrysanthemum midge, jack pine, clover and alfalfa seed chalis-fly. Department circulars include T. N. T. as a blasting explosive, the installation of dust-collecting fans on thrashing machines for the prevention of explosions and fires, and recommended United States grades for sweet potatoes and Bermuda onions.

A score or more other papers, including official reports and records, are also noted as ready for distribution.

What a Quart of Ordinary Beans Grew—Steaming Bean Pot Now in Frequent Use

It was just a quart of ordinary navy beans that started this story, but their history makes the story worth the telling. To begin with, there really were two quarts of beans, and they were purchased from a neighbor who, it was claimed, "never failed in making a good crop of beans." One quart of the beans were put to soak in cold water one evening, and the next day they were placed in a bean pot along with a piece of pork and some molasses and were baked slowly in the oven until they were nice and brown and tender.

When the steaming bean pot was brought upon the table that evening and the beans were served, everybody pronounced them the best beans ever eaten, and some one said he did not see why such beans were not served more often. It was decided that the other quart of beans should not meet the same fate, but that they should be planted to grow more beans for the use of the family. Out on the front lawn was a piece of ground that had been plowed and leveled for reseeding, and it was decided to plant the beans upon it. Beans would look nice and green in the front yard, and why not there? The grass would do better if sown later, anyway.

Marking Off the Soil.

Fertilizer was applied in moderate quantity, and the mellow soil was marked off in 10 rows just as straight as rows could be made with a tightly drawn line and a hoe. Into the small furrows the beans were dropped, five in a hill, 12 inches of space being left between the hills. The beans were then carefully covered about an inch and a quarter deep and an empty apple barrel was rolled over the rows to press the soil slightly. After a few days one would have thought that some fairy must have called to those sprouting beans, for they all poked their heads above the ground in a single night.

The neighbors who saw them the following day declared they never had seen such an even stand of plants.

Those beans simply ran a race with each other from the very start and a more even development could scarcely be found. By and by, after several hoeings and workings, the pods began to form and the rows were a solid mass of foliage. About this time the neighbors all began to say that the beans had been planted too early; that the hot weather of July would ruin them; and that if they did escape the drought the bean weevil, an ugly little insect that bores holes in the beans, would destroy them. But nothing happened and the beans kept right on putting on pods until there seemed to be more pods than leaves or stems and the pods began to ripen.

Were Exposed to the Sun.

When most of the pods were ripe they were gathered and spread on a canvas sheet near a tree to dry. For several days the pods were exposed to the sun and the wind, then the beans were hulled by beating the pods with a stick. After the beans were all shelled the pods were raked off and the chaff was got rid of by letting the beans fall upon the sheet while a good breeze was blowing. When finally cleaned there were 16 quarts of the finest beans you ever saw, and into a bag and down in the bottom of a tight barrel they promptly were placed. Here they were treated with a small quantity of carbon disulphide to destroy any of the enemy bean weevil that might be present.

This was almost two years ago, and still every now and then the steaming bean pot comes upon the table and the family gather round the board to voice their praises of the original "quart of beans."

GRASSHOPPERS MENACE CROPS IN PARTS OF THE NORTHWEST

Grasshoppers are infesting the farms in the northern portions of North Dakota, Michigan, and Oregon east of the Cascade Mountains, according to reports received by the Bureau of Entomology. In Dakota the situation is particularly serious because the farms have suffered from several years of drought, and the average farmer's bank account is much decreased by these years of extremely low crop yields. Now comes the grasshopper to destroy the first good crop the farmers have been able to grow since the beginning of the extended dry seasons. In many cases the farmer's predicament is desperate, with no funds available to enable him to fight the pest which threatens him with bankruptcy.

The United States Department of Agriculture has no available funds for the purpose, but is giving such assistance as it can toward putting control measures into effect.

Grasshopper bait, made according to the directions given below and scattered over the infested areas, is a highly successful weapon to check the pest.

Use 25 pounds of wheat bran; 1 pound of Paris green, or white arsenic; 6 oranges or lemons finely chopped; 2 quarts of low-grade molasses, and from 2 to 4 gallons of water.

Other baits are described in Farmers' Bulletin 747, United States Department of Agriculture, but there is very little difference in their relative efficiency. In moist climates the baits may be applied in the morning, but in semiarid regions it should be put out in the evening to secure the best results.

LESS SUGAR IN JELLIES AND JAMS.

One-fifth to one-quarter less sugar can be used in making jelly and jams, experiments made by household experts in the United States Department of Agriculture experimental kitchen indicate.

Another sugar-saving wrinkle tested by the experiment kitchen is to add one-quarter teaspoon of salt to each cup of fruit juice for jelly or pulp for jam, marmalade, and conserve. In the case of nonacid fruit this makes the absence of the full amount of sugar less noticeable. The salty taste will disappear after the product has stood for a few weeks, but the flavor will be much the richer for the addition of the salt. Salt was so used in England during the war, and the method suggested was based on reports of the process.

With fruits of pronounced flavor, or where lemon and orange peel or spices are used for flavoring those with mild flavor, various sirups take the place of part of the granulated sugar. Usually half and half is the proportion used in substitution.

WATER-POWER ACT FINDS FAVOR.

Already applications for more than one-half million horsepower have been filed with the Forest Service of the United States Department of Agriculture in connection with the water-power bill signed by the President on June 11.

The increasing cost of fuel and the difficulties of its transportation have put a premium on water power, say Forest Service experts. It is expected that the legislation will mark the beginning of a new era in power development in the United States. Big developments are to be undertaken in the near future in the East, South, and West.

The act applies to all power sites on public lands and reservations and on the navigable waters of the United States, including international boundary waters. Its administration is charged to a commission comprising the Secretaries of War, Interior, and Agriculture. Full details of the act, such as licenses, rates, and service, may be had upon application to any of the departments named.

Fall Seeding of Oats Advantageous— Crop Yields Better; Matures Earlier

Fall seeding of oats has numerous advantages over spring seeding, where the fall-sown varieties can be successfully grown, as in the States of South Carolina, Georgia, Alabama, Florida, Mississippi, and Louisiana; in Virginia and North Carolna, except in the Piedmont and mountain sections; and in southern and eastern Texas, announce specialists of the United States Department of Agriculture, in Farmer's Bulletin 1119, entitled "Fall-Sown Oats."

Fall Seeding Preferable.

Under the climatic conditions in those States the fall-sown crop usually yields better and matures earlier. The land can usually be prepared in better shape in the fall than in the spring. Fall seeding interferes less with other work. Poorer land and less fertilizer can be used. The fall-sown crop furnishes a cover for the soil during the winter and prevents washing.

The bulletin sets forth the varieties of oats that can best be grown in the South and details the soils and fertilizers that should be used. It is recommended that, wherever possible, oats should follow a cultivated crop. One of the best rotations for the cotton-growing section is: First year, cotton; second year, corn with cowpeas planted at the last cultivation; third year, fall-sown oats, followed by cowpeas. Outside the cotton-growing section a good rotation, including oats, is: First year, corn with cowpeas in the corn; second year, oats, with clover or grass seeded in the oats; third year, meadow or pasture. Other arrangements are also suggested.

Discusses Proper Methods.

The bulletin details the preparation of the land, the preparation of seed, the treatment of the seed for smut, the sowing of the seed, methods of seeding, treatment of the land after seeding, methods of harvesting, and the utilization of the crop.

Farmer's Bulletin 1119 can be had upon request of the United States Department of Agriculture, Washington, D. C.

MORE AMERICAN TEA PARTIES—STANDARDS FOR 1920 READY

The first American Tea Party in Boston Harbor has received more publicity than the thousands of somewhat similar ones constantly being held at all American ports of entry under the United States tea act, first approved in 1897, by which the Department of Agriculture is charged with the duty of inspecting all teas presented for importation into the United States. Uncle Sam is fussy about his noninebriating cup.

The Tea Inspection Service carries out the administration of the act and selects tea samples which are standard from season to season. For the year 1920 the following standards have been established:

1. Formosa Oolong (used for Foochow and Canton Oolong).
2. Congou.
3. Ceylon (used for India, Java, and Sumatra).
4. Gunpowder, green.
5. Young Hyson, green.
6. Japan.
7. Scented Orange Pekoe (used for capers).
8. Scented Canton.

These standard samples are available to importers at cost prices to aid them in determining whether their contemplated importations of tea will meet the requirements of the tea inspection act.

All teas are tested for "purity," "quality," and fitness for consumption in comparison with these physical standards upon entry to the United States, and if they fail to equal the standards in all the requirements they are prohibited entry and must be shipped out or be destroyed.

KEEN INTEREST IN DUST FANS SHOWN BY COAST THRASHERMEN

Farmers and thrashermen in the Pacific Northwest, where thrasher explosions and fires have been most frequent, are manifesting a great deal of interest in the dust-collecting fan worked out by the United States Department of Agriculture. This fan takes care of smut and other dusts in such way as to minimize the danger of sufficient dust in suspension to cause an explosion. In connection with the system worked out for grounding thrashers to get rid of the static electricity generated by the machinery in operation, the fan has proved itself an almost sure preventive. There is no record of any machine having exploded when properly equipped with these devices. From the Walla Walla and Palouse districts of Washington, where not less than 80 explosions occurred last year, numerous appeals by telegraph and otherwise are coming to the department for information as to where the fans can be bought. The department for some time past has worked closely with manufacturers of thrashing machinery, arranging for having the fans manufactured in adequate numbers. The Washington grain men are being put in touch with the manufacturers who are in position to supply their needs. The department, however, has been forced by lack of funds to abandon its investigational work, and the plans for still further improving the prevention system has been abandoned, at least for the present.

EXPERTS AID IN WAR ON RATS.

The health authorities of the city of Cincinnati have secured the aid of the Biological Survey of the United States Department of Agriculture in planning the details of a city-wide drive to exterminate rats. The methods of poisoning and trapping the animals recommended by the department's men who have specialized in work of this sort will be followed very largely. The city has been divided into districts, in each of which a door-to-door canvass will be made to bring home to all occupants of houses, factories, stores, etc., the importance of cooperating in this important movement. A large amount of literature prepared by the department, dealing with rat extermination, will be distributed during the campaign. Special emphasis will be laid on the fact that rats are carriers of disease and are particularly apt to contaminate human food wherever it is accessible.

DETROIT CHILDREN DRINK MORE MILK.

Dairy specialists sent out by the United States Department of Agriculture to stimulate, through educational work with women, the consumption of milk and milk products for human food, report large increases in the use of dairy products in those States where milk campaigns have been put on.

In Detroit the president of the Distributors' Association reported an increase in that city of 10 per cent in the sale of whole milk, 15 per cent in butter, and 3 per cent in cottage cheese, directly attributable to a milk campaign. One Detroit distributing firm has since sold weekly 20,000 more pounds of butter and 50,000 more quarts of milk than it did before the educational work on the value of dairy products was given to the people.

During the campaign 371 lectures were given in schools, factories, and before women's clubs and mother's meetings. These meetings were attended by 70,000 persons.

URGED TO LEARN METHODS OF DETERMINING WHEAT DOCKAGE

(*Continued from page 1.*)

rated by the means described above, no dockage is assessed. This one-half of 1 per cent, however, should not be returned to the sample used in determining the grade. If 1½ per cent of dockage is separated, 1 per cent of dockage would be indicated in assigning the grade. Thus it will be seen that any fraction of a per cent of dockage is considered as a "tolerance" in the standards.

Indicated in Certificate.

After the dockage is removed the clean sample is used in determining the grade, save in a few exceptions. Dockage does not affect the grade assigned to the wheat. If 1 per cent or more of separable foreign material is found, dockage is assessed. In the inspection certificate the amount is indicated immediately after the grade designation, as, for example, No. 1 northern spring, dockage 1 per cent.

If the wheat seed used is carefully selected, cleaned, tested, and treated before planting, if care is exercised in cultivation and crop rotation, and if the wheat is carefully thrashed and cleaned, there should be, ordinarily, very little foreign material present when the crop is marketed. The foreign material in wheat may seriously affect its value in that it often increases the cost of milling and causes injury to the baking qualities of flour. Thus, the amount of dockage present has a direct bearing on the commercial value of a lot of wheat.

Apply to Foreign Material.

Two terms in the Federal wheat standard apply to foreign material—"dockage," and "foreign material other than dockage." The former is foreign material that is separated from the sample of wheat by the proper use of appropriate hand sieves. "Foreign material other than dockage" is the foreign material not separated in the screening, and remains in the dockage-free sample. "Foreign material other than dockage," on the other hand, is a factor in the grade and definite percentages are permitted in each numerical grade. Details regarding the grading of wheat, including the manner in which "foreign materials other than dockage" enter into the calculations, are given in the bulletin Dockage under the Federal Wheat Grades.

Ordinary dockage can be removed from quantities of wheat with comparatively simple cleaning machinery, such as is installed in many grain elevators and mills, or it can be removed on the farm with an ordinary portable fanning mill equipped with a screen having perforations like those specified for the dockage sieves.

Dockage found in wheat in many cases is of real value, while in other cases it not only may have no value, but may contain ingredients positively harmful if ground with the wheat. Dockage frequently contains quantities of other grains and weed seeds, such as mustard, flaxseed, oats, or other cereal grains. Much of this can be used to good advantage as poultry or stock feed. Mustard and flaxseed can be removed from the dockage in practically a pure state by special cleaning machinery sometimes found in terminal elevators and the larger flour mills. When so separated, it will command a good price. The farmer, of course, should receive a reasonable return for this valuable dockage.

Importance of Dockage System.

It should be understood that it is optional with a farmer whether he remove dockage or not. The point which United State Department of Agriculture officials emphasize is that it is to his advantage to understand dockage, and, in many cases, to remove it himself. If the dockage system is not employed, the foreign material in the wheat may cause a lowering of the grade. If no grading system is employed (grading usually is not compulsory for the farmer in selling wheat at country points, though all shipments to terminal markets are graded), and the country miller or grain dealer buys wheat as delivered at a flat rate, or on the basis of the average quality delivered, the price paid usually is sufficiently low to protect the buyer against loss caused by objectionable foreign material delivered with the general run of the grain.

Under the dockage system of the Federal standards, however, the amount of such foreign material separated and considered as dockage is deducted from the weight of the wheat purchased and, in any event, does not affect the grade of the wheat after it has been cleaned. This results in a higher grade, and the price paid is on the basis of this grade. In other words, the grain dealer or miller who purchases wheat containing foreign material does not pay wheat prices for dirt, etc., under any system of grading. On the other hand, where the flat-rate method of purchase is followed the farmers, with little or no dockage in their grain, are often obliged to sell their wheat at the same price as wheat containing dockage.

The bulletin referred to above describes how to properly secure samples of grain for inspection, whether from carload lots, bulk shipments, canal boats, barges, or other vessels, grain in sacks, elevators, or warehouses. It describes "the wild-oat kicker," a device commonly used for removing barley, oats, wild oats, pieces of straw, and other coarse matter from wheat. It also describes the set of perforated metal hand sieves for separating dockage.

After the dockage is removed from the original sample and the test weight per bushel has been determined, the sample is then examined to ascertain whether an analysis is to be made for any other factors which determine the grade.

Methods of Handling Dockage.

Various satisfactory methods of handling dockage may be employed in normal times. Where wheat is cleaned on the farm or at the country elevator and only the screened wheat is delivered to the local buyer, there is less possibility of difference of opinion regarding the grade of wheat delivered. Such an arrangement tends to establish greater confidence in the grades given by the local buyer. When noxious weed seeds are present it is advisable to have the removed dockage ground before feeding to prevent the further spread of these weeds on the farm. In many cases such material has a relatively high feed value and often farmers will find it to their advantage to remove the dockage themselves or have their local buyers do it for them. The bulletin describes other methods of handling dockage and making allowance therefor. The farmer's choice of method will be governed largely by what he considers the most advantageous method for his case.

Further information as to the correct method of determining dockage in wheat may be obtained by writing the United States Department of Agriculture, Washington, D. C., or by writing to or visiting the nearest office of Federal grain supervision. Such offices are located in the large grain markets. A farmer or country grain dealer may also mail it to the nearest licensed grain inspector and receive for a small fee an official certificate showing the grade and dockage on that particular sample. This sample should be 2 quarts in size, of which at least 1½ pints is inclosed in a clean, airtight container. The remainder, if any, with the container, should be placed in a clean cloth sack. The address of the nearest licensed grain inspector can be secured by writing the department or any supervision office.

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